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## ORIGINAL COMMUNICATIONS.

### ALCOHOL AND INSANITY.[1]


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There are two ways of looking at this subject: either from the *sociological* or from the *pathological* view-point.

The sociological aspect of alcoholism is the one that is very much in evidence at the present time. This is the field that invites the activities of the reformer and the amateur lawmaker, in whom missionary zeal is not always tempered with scientific knowledge.

This country has been the scene of periodic outbreaks of temperance crusades from an early time in its history. These crusades are worked up by enthusiasts; they make a great deal of noise; they do some good and more harm; then they finally exhaust themselves with their own fury, and the country settles down again and takes its beer and whisky. They are the occasion of much fanaticism, and they produce an infinite variety of cranks. As a field for the psychological study of epidemic morality they are unsurpassed; and they are not unlike the popular furores that used to appear in the middle ages, attended by all sorts of pandemic hysteria on the subject of witchcraft. In our more enlightened age, intemperance indeed may be said to be a substitute for witchcraft. The populace seems to demand these periodical moral upheavals; and if witches are no longer to be had, a substitute for them is found in the saloons. I can recollect one of these temperance outbreaks when I was a boy, just after the close of the Civil war, when the popular mind was in an emotional state, just as it is now in Europe; and I can distinctly recall a nice, white-haired old man who cut down a fine apple orchard, lest the trees should bear fruit, which would yield cider, which would become hard, and peradventure some one would drink thereof and get tipsy. This old man, if he were living to-day, would probably be sent to the legislature.

As I am not in sympathy with this particular kind of enthusiasm, I will pass on to the second aspect of the alcohol question, which more nearly concerns us as physicians, and proceed to discuss it from the standpoint of pathology.

Drunkenness is regarded by the law as a crime, by the world as a vice, by the church as a sin, and by science as a disease. It is as a disease that we physicians are called upon to study it; let the law, and the world, and the church look upon it as they will.

It is claimed that the ravages of alcohol are greater in modern life than among the ancients, for the reason that strong alcoholic drinks are now distilled and marketed at a low price. Among the ancients, it is true, the use of alcoholic drinks was widely prevalent, but the ancients had, as a rule, only the fermented juice of the grape. They had no liquors as potent as our modern whisky and gin. But beer is a very ancient beverage, said to have been known to the Egyptians. It was not until the eleventh century that the process of distill-

[1] Read at a meeting of the Philadelphia County Medical Society, April 14th, 1915.

ing the spirit of wine was discovered by the Arabs, who gave to this fluid the name of *alcohol*.[2] The process of distilling alcohol from many and various substances, and putting it on the market at a low price, is largely a modern art, and, therefore, the use and abuse of strong alcoholic drinks give a special character in this age to the diseases caused by chronic alcoholism, which presumably they did not have, at least to so great an extent, among the ancients. It follows that the age of the poetry and romance of drinking has largely gone by, and has given place to a gloomy contemplation of the pathology of alcoholism. Most of the good drinking songs and Bacchanalian literature antedate the present times, and are displaced to-day by a hideous propaganda for local option. Since Magnus Huss wrote his book on chronic alcoholism in 1852, in which he described the Swedish dram drinkers, some of whom consumed as much as twenty glasses of raw brandy every day, there has grown up an immense literature on the abuses of alcohol—a literature which reflects the modern attitude towards this subject; no longer regarded as a convivial but as a morbid phenomenon. In 1857 Morel, a French alienist, wrote a systematic treatise in which he aimed to show that alcohol is a cause of chronic degeneration in the nervous system, which shows its effects not only upon its immediate victims, but also upon their descendants through several generations. Morel's book pointed the way for the scientific study of this subject which it has ever since followed—but it was probably also responsible for a tendency to exaggeration, especially on the subject of heredity, which is to-day still rather too much in evidence. It set the pace for the ultra-scientific school, some of whom are not excelled by the most extreme prohibitionists in the extravagance of their statements.

[2]Berthelot has written a learned essay on "La Découverte de l'Alcool," in which he refutes the opinion that alcohol was discovered by the Arabs. The statement in the text is from the present writer's work in Wharton and Stillé's Medical Jurisprudence, vol. iii, 5th Ed., from which a few other statements also are included in the present paper.

There is, however, a brutal feature about our modern drinking habits that cannot be gainsaid, and the evil effects are conspicuous on the nervous system.

Alcohol causes a variety of mental disorders. Acute alcoholic intoxication, or ordinary drunkenness, is so well known as to need no comment. It is only after alcohol has been taken for some time that it causes disease, and the commonest of these diseases is the psychosis known as delirium tremens. In the language of psychiatry delirium tremens is an acute toxic confusional insanity. It occurs in persons who have been drinking to excess for a period of some days or weeks: it is the climax, as it were, of a protracted or chronic poisoning. In delirium tremens the immediate effects of the alcoholic poisoning may pass away, but there is left such a profound disorder of the nutrition of the brain that a delirious state continues, and is kept up for days and even weeks, without the ingestion of more alcohol. Therefore, delirium tremens stands for more than mere continued alcoholic poisoning. It represents a state of malnutrition of the brain, which is a veritable disease, and one which, although started by alcohol, does not depend upon the continued use of alcohol for its further duration. It is a disorder of metabolism.

This is shown in the form called *delirium potu suspenso*, in which the delirium breaks out only after the alcohol has been withdrawn. Some days may elapse after the last drink, and the patient may seem to have almost recovered from his debauch, when the delirium supervenes. This is sometimes seen in surgical cases, in which the patient, having received an injury, such as a broken bone, is denied his alcohol, does well for a few days, and then suddenly develops delirium tremens. The same is sometimes seen in pneumonia, and other acute diseases. I once saw a woman who was brought into the Methodist Hospital with a fracture of one of the bones of the leg. The fracture was set, the patient kept in bed, and did well until about the third day, when she began to see things, and de-

veloped a blooming attack of delirium tremens. I have seen it come on in the course of a pneumonia, when it may present a very confusing picture.

These facts have led to various theories about the pathology of delirium tremens. The subject is by no means clear. Kraepelin held that there is an alteration of metabolism induced by the alcohol, and that there is a consequent internal intoxication. Some French writers have held that this vicious metabolism occurs in the liver and kidneys, rather than in the brain-cells, and that the delirium is really a symptom of these changes. But I do not see why we should exclude the brain-cells themselves in this activity. Their vito-chemistry, if I may be allowed the term, has been disturbed, and the autointoxication is in themselves. According to the calculations of Thompson and of Donaldson, the whole of the nerve-cells of the human cerebral cortex do not weigh more than 27 grammes—that is, they weigh about 400 grains, or a little less than one ounce. It is with this limited amount of highly vitalized and differentiated neurone-tissue that we do all our thinking. How easy must it be for this relatively small amount of protoplasm, or neuroplasm, to be poisoned by a constant ingestion of alcohol, until the vito-chemistry is disturbed for a long period after the original cause is withdrawn.

Some writers have built up a theory that delirium tremens is always a disease of abstinence. For them, the alcohol acts as a toxin, and an antitoxin is formed in the body to combat it—just as in the case of bacterial toxins. When the alcohol is withdrawn, the antitoxin exerts an undue activity, and in its turn becomes a poison to the brain. This is the theory of Marmé, Elzholz, and others—if I understand them. Elzholz in cases of delirium tremens found a distinct leucocytosis, which disappeared during convalescence. These facts seem to prove that some toxic substance other than alcohol comes into play, for alcohol itself does not cause a leucocytosis. Herty, on the other hand, maintains that the fault is always in the kidneys, and that delirium tremens is merely a form of uremic encephalopathy—an opinion from which I strongly dissent. I believe that there is some obscure form of faulty metabolism, set a-going by the alcohol, and that the cause of the delirium is thus a sort of autointoxication; but I do not know what it is, or how to express it in scientific terms. This is the opinion also of such good authorities as Tanzi and Régis.

The indications for treatment would seem to be to eliminate. Régis treated a series of 80 cases of delirium tremens in this way, and gave no alcohol. He gave small quantities of milk and eggs at short intervals, large quantities of water by the mouth, laxatives, and moderate doses of chloral and bromide. He had but three deaths. I do not believe in giving alcohol in these cases, except in very much broken-down sots, and I have seen cases do well with very little if any sedative drugs. I would caution especially against large doses of chloral. I think I once saw a death from an overdose of this drug in a young man suffering with delirium tremens. An opiate is a better sedative in some of these cases. At Blockley good results have been reported in some cases from the continuous warm bath. There is a tendency to overdrug these patients. They cannot be cured in a day, and they are bound to have a little hell for a while all to themselves.

What has been said about the pathology of delirium tremens applies equally to most of the other alcoholic psychoses. In the more chronic cases, however, and especially in persons getting on in years, we have to take into account also the vascular changes. These changes consist in thickened arteries; and in old inebriates we sometimes see cloudy membranes, shrunken convolutions, cerebral edema, and even the condition known as pachymeningitis hemorrhagica. Arterial sclerosis is very commonly ascribed to alcoholism, but it is easy to make erroneous statements on this subject, for arterial sclerosis occurs in the highest degree in some persons who never touch alcohol. In

fact, sclerosis of the great vessels at the base of the brain, forming the circle of Willis, is commonly seen in persons past sixty years of age. Alcohol has nothing to do with many of these cases—nevertheless, such a vascular state undoubtedly acts to complicate the alcoholic psychoses of advanced years.

In alcoholic multiple neuritis we sometimes see a mental disorder which is called Korsakoff's psychosis. It has also been called *chronic* delirium tremens. The patient is disoriented—that is, he has lost the identity of time, place, and person; he does not know where he is, or the hour of the day, or the day of the week, or month; nor recognize persons, even his nearest kin. Along with this he presents the appearance sometimes of being quite rational, but he indulges in fabulation; that is, the tendency to spin yarns. He is paralyzed in his arms and legs from multiple neuritis, and the prognosis is doubtful. Many of these patients die.

Another alcoholic psychosis is the so-called *mania-a-potu*, a term, however, which has rather gone out of fashion in our text-books. The patient goes into a raving mania or fury; he is excited, combative, noisy, impulsive, profane, destructive, and violent. He may do harm to himself and to others. Such a patient is not merely intoxicated in the ordinary sense, for the maniacal attack may continue for days after the alcohol is withdrawn. Such outbreaks are more probable in highly neurotic individuals, and in some cases it takes surprisingly little alcohol to set the patient off.

This presents at once another problem. There is a class of inebriates whom we call dipsomaniacs. They are the victims of a periodic craving for drink which assails them with the force of an overpowering impulse. This morbid craving is seen especially in neurotic persons—in those who are predisposed by heredity to nervous disorders and insanity. Spitzka suggested, with much plausibility, that such outbreaks are really the evidences of periodic insanity, especially periodic and recurring mania. Tanzi says that they are instances of masked epilepsy. According to these views the drunkenness is not the cause of the insanity, but insanity is the cause of the drunkenness. The craving for drink becomes a veritable obsession; no consideration for family or friends or self can control it; after it has exhausted itself, the patient may present one or other of the alcoholic psychoses, such as the delirium or mania already referred to; or profound melancholia, in which he may commit suicide.

When the use of alcohol is continued year in and year out, we see the chronic effects. The confirmed toper invariably degenerates, and presents the chronic deterioration of the mental and moral qualities so commonly observed. His mental faculties become slowly and surely impaired, until he is unfitted for work or for business. He is inattentive, unreliable, with his memory impaired, his judgment weakened, his conscience blunted, and his intellect clouded. Upon this state of mental and moral deterioration there may be engrafted in time some form of chronic alienation. There are two varieties of this chronic alcoholic insanity.

The first is the *delusional insanity* of alcoholics. In this disease both hallucinations and delusions occur. The patient sees revolting objects, and he especially hears threatening or insulting voices. The delusions are of a persecutory type; he becomes suspicious; he believes that he has enemies; that he is being poisoned; or his delusions may have a hypochondriacal tinge, and he believes that he is diseased, or that he harbors some animal within him. Perhaps the commonest, however, is the delusion of marital infidelity; he suspects and accuses his wife, and under the influence of this delusion he may become dangerous to her. This is the type of chronic alcoholism that has an important medico-legal side, for these lunatics may become homicidal. In time such a patient may develop expansive delusions—the so-called

alcoholic *paranoia*—and come to believe himself some great and exalted personage. This is a bad sign always. There is not much good left in such a man; alcohol has won out in his case. *Nihil de mortuis nisi veritatem.*

Another form of chronic alcoholic insanity is the *alcoholic pseudo-paresis.* This is an interesting subject. General paresis, or dementia paralytica, is now well recognized as a purely syphilitic affection. Noguchi and others have discovered the spirochætes in these brains, and the question of the causation of the disease is now accepted as settled. It was not always so, however; and up to a very recent date it was not uncommon, especially in France, to ascribe to alcohol an important rôle in this etiology. There was reason for this, because a type of mental affection closely resembling paresis was observed in alcoholics. In 1870, Nasse, a German writer, called attention to cases of alcoholism with all the mental and bodily symptoms of general paresis, but differing essentially in their curability under the deprivation of alcohol. He proposed the name of *pseudo-paralysis a potu.* The type was a long time in gaining recognition. Moreau, Régis, Rousset, and others contributed valuable papers, and finally at the Congress of Alienists in 1891 it was admitted that alcoholic general paresis presented distinctive features, and the affection is now generally recognized in psychiatry.

The resemblance of this alcoholic pseudo-paresis to the genuine syphilitic paresis is sometimes very marked. On the mental side there is the dementia with the characteristic grandiose delusions, erratic conduct, in some cases passing into a stuporous state. On the physical side there is the muscular tremor, speech defects, and occasionally also epileptic and apoplectic attacks. Régis even claims that the pupils may be unequal, irregular, and sluggish to light. For my part I have never seen these pupillary changes, and I am inclined to doubt them. They would suggest to me the desirability of having a Wassermann test made. The great distinction, however, between the two diseases is the curability of the alcoholic form. I have seen recovery take place very quickly after the alcohol has been withdrawn and the patient treated in a hospital. One of my earliest experiences with a case of this kind was in a physician, whom I took out to Kirkbride's, feeling that his case was hopeless. He made a satisfactory recovery in about six weeks, and ultimately returned to his practice—and to his drink. He did not take the chance which we gave him, and the poor fellow is long since dead, from alcohol and from drugs.

Finally a word as to alcoholism in old age. As Bevan Lewis has well said, the excessive use of alcohol lends a frightful impetus to the retrograde changes which naturally occur in the brains of old people. It promotes senile dementia; and the popular opinion that alcohol is a preservative for the aged is a gross fallacy. It is remarkable how insidiously the alcohol habit may be acquired in old age, even in persons who have heretofore led temperate lives. It is the cause sometimes of senile epilepsy. I knew an old gentleman who got into the bad habit of going on occasional sprees, which were always wound up with a series of epileptic fits. I knew another old gentleman, an elder in the church, whose life had always been most exemplary. I was called to him one day by his daughter in great alarm, and found him suffering with alcoholic multiple neuritis. Investigation led to the mournful discovery that he had been drinking the contents of three quart bottles of whisky a week. He had done it to preserve his strength, but it landed him in the cemetery.

I have thus endeavored to give a concise statement of the various forms of alcoholic insanity; and I desire now to make an equally plain statement about some of the fallacies which are promulgated on the subject by too ardent reformers. One of these fallacies is the statement that our insane asylums are largely populated by the victims of alcohol. I do not hesitate to

repel this as a libel on the insane. Statistics, properly compiled, do not prove it; and I am willing to submit the question to the asylums themselves. For thirty years I have been associated with the Pennsylvania Hospital for the Insane—known as Kirkbride's—in the capacity of examiner. During that period I have examined and certified for that large and representative asylum an average of about 20 new cases every year; that is, a total of at least 600 cases. I have, to be sure, kept no accurate records, but I believe my memory is correct when I say that a very small proportion of those cases were cases of alcoholic insanity. Among the women especially I can recall only two well-marked cases. The cases examined by me, however, do not include by any means all the admissions. I therefore asked Dr. Copp to give me the exact figures for the year just closed, which may be taken as representative. These figures are as follows: For the Female Department the total admissions were 114. Of these only three were to be attributed to alcohol—that is, about 2 per cent. Of these three patients, one had a plus Wassermann with suspicious pupillary phenomena, and may really have been a case of syphilitic paresis; and another of the three took large amounts of paregoric, and so may really have been a victim of opium instead of alcohol. This leaves only one case of undoubted alcoholic insanity. For the Male Department there were 85 admissions, of which six were to be ascribed to alcohol—about 7 per cent.[1] The State Asylum for Chronic Insane at Wernersville reported for the year 1907 a total number of 81 admissions, of which seven were ascribed to alcohol—about 9 per cent. Some years ago Dr. Reed, of Cincinnati, examined critically 200 consecutive cases of insanity, and found that 54 per cent of them were total abstainers, while of the remaining 46 per cent the great majority had merely a history of being occasional drinkers (just as with a large proportion of the healthy population), and alcohol could not be traced as a cause. As every alienist knows, the great bulk of the population of our insane hospitals is made up of cases of manic-depressive insanity, simple and involutional melancholia, dementia precox, senile dementia, paranoia, confusional insanity, and terminal dementia and epilepsy—in most of which classes alcohol is really an insignificant cause, and in some of them is almost entirely absent. Even in the psychopathic wards at Blockley, where we undoubtedly see a good deal of alcoholism, these patients by no means make up the majority or anywhere near it. In 1914 there were 384 admitted to the insane wards at Blockley, of which 22 were cases of alcoholic psychoses, or 5.72 per cent. I grant that it is difficult to estimate the question of alcohol in some cases of insanity—but that is no excuse for making sweeping and unfounded statements. It should rather suggest caution and conservatism. The same is true especially of heredity due to alcohol. You can prove almost anything by heredity, whereas, in fact, it is the most obscure and insoluble problem in psychiatry. There are but few patients in the asylums whose heredity can be traced with anything like scientific accuracy. To jump to the conclusion that alcohol is an important factor in heredity is simply begging the question. The fact that an insane patient had a drunken father does not prove anything. The father may have formed the alcohol habit entirely after the birth of his child.

If Weismann is correct, acquired characters are not transmissible. How then can such an acquired habit as alcoholism be transmitted? According to Conklin, the germ plasm may be poisoned by alcohol, and the effect be shown in the offspring, as has been seen in guinea-pigs, but it is doubtful whether this acquired character can be transmitted beyond one generation.[1]

The statistics of many hospitals are notoriously inexact. Thus the incidence of

[1]These cases, however, do not include 11 patients (9 men and 2 women) who were admitted as voluntary patients for mere alcoholism without a psychosis. Such patients are not insane and are not certified. They are merely patients who have been hard drinkers, and go to the hospital to get straightened up. They are not properly to be included as cases of alcoholic insanity.

[1]Heredity and Environment, 1915, p. 351.

alcohol as a cause of insanity is variously estimated at from 10 to 30 per cent. This wide variation shows clearly how unreliable most of them are. As an instance of the wide range of statistics, we may take Tanzi's figures for Italy. Liguria gives 15.84 per cent of alcoholic patients in the asylums. Lazio comes next with 13.21 per cent; then Lombardy with 7.02 per cent; Venice 5.91 per cent; Naples 2.31 per cent; Sicily 0.97 per cent. This descending scale almost reaches a vanishing point in Sicily; and all this wide variation occurs in one country. Tanzi thinks the difference is partly to be accounted for by differences in social and economic environment, but this seems to me very doubtful in such a homogeneous country as Italy.

According to the U. S. census for 1910, in a total of 60,769 insane patients admitted to hospitals there were 10.1 per cent suffering with "alcoholic psychoses," but doubt is expressed about the accuracy of the diagnosis in many of these cases. It has been claimed that in some of the prohibition States the percentage of alcoholic cases has decreased.

What are alcoholic patients? and how are they determined in the asylums? It is done somewhat in this way: if the patient or his friends give a history that he has been a "drinking man," he is put down on the records as "alcoholic." Very little if any attempt, however, is made to determine the amount and extent of his drinking, and its real bearing on his insanity. This is the weakest spot in this whole system of statistics. The mere statement that an insane man has been a "drinking man," proves but little if anything. It does nothing more than raise a presumption, or an interrogation point. A drinking man may develop insanity from causes entirely apart from his drinking, especially if he happens to have been a moderate drinker, just as he may acquire tuberculosis or smallpox without reference to his habits.

This subject is not to be solved by declamation and mass meetings. Alcoholism is a great social and economic evil, but it does not follow that it is to find a remedy by any offhand methods, such as a referendum, or by piling up sumptuary laws.

What is the remedy? I confess I do not see any remedy just at hand. I do not believe that it is to be found in prohibition or any of its disguises; but although I feel strongly on this subject, I do not intend to indulge in immoderate language. The American people long ago repudiated the dogma of the divine right of kings—but they substituted for it the dogma of the divine right of majorities. It may be a question whether the one dogma has any more substantial ground in morals than the other. There is now sweeping over the country a popular agitation, which has for its basis the creed that ten men have the right to say what another nine men may drink. This is starting a conflict which will be more far-reaching than any of us can foresee, and the result of which is fraught with some peril. It is a conflict in which the liquor question is not the only one at issue, for popular government itself is on trial. It seems like a confession of failure already to say that the people of this country are not fit to govern themselves, but must be governed in the minutiæ of their daily lives by the legislature.

Whether a large minority of the American people would submit permanently to be dictated to on this subject by a small majority, is a very grave question. It is bound to become a political question of the first magnitude; and it may well be that it carries with it the seeds of dangers to the Republic. I am as alive as any man to the evils of alcohol, but I am also alive to the evils of a personal and moral slavery.

The most practicable way to injure a trade is to diminish the demand rather than to attempt by force to diminish the supply, for it is a principle of political economy that so long as a demand exists the supply will be forthcoming. A campaign of education to show the evils of alcoholism is a rational method by which to combat the liquor traffic, and it is with some such idea that the present paper has been written.

# INDICATIONS AND CONTRAINDICATIONS FOR THE USE OF ALCOHOL AS A DRUG.

BY M. H. FUSSELL, M.D.,
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The indications for the use of alcohol as a medicine are few. The contraindications are many.

When invited to take part in this discussion, I felt as though it would be an easy task to perform, but when I came to take stock of what I had to say I found it anything but an offhand performance.

I take it you wish to hear how I use alcohol as a drug, and why I use it.

I was taught to use large quantities of alcohol in all cases of infection, and in most cases to use it from the beginning of the case. This is the advice of some authors still, and it seems to me to presuppose that there is an indication for the use of alcohol in all infections. To quote Cushny: "An old rule advised that if the pulse becomes slower, the temperature falls, the respiration is deeper, the nervous symptoms are ameliorated, and the skin becomes moister after the administration of alcohol, the treatment ought to be continued; but this is merely equivalent to advising the continued administration of alcohol when it is found to improve the symptoms."

My practice now is to use alcohol very rarely, and then usually in small doses. I was brought to this practice I believe by observing that cases of acute infections, which were the ones in which alcohol was supposed to be especially valuable, did about as well with no alcohol as they did when it was administered, and infinitely better than when it was given in a quantity of six or eight ounces, or even twelve ounces, in the twenty-four hours. It is now my practice, as I have said, to use alcohol only in a few selected cases, and never to use it in a routine manner.

## INDICATIONS.

*Use in alcoholics — First indication:* When a confirmed alcoholic, not necessarily an individual who is debauched, but one who uses alcohol regularly as a daily routine, is stricken with an acute infection such as pneumonia, I believe it is good practice to give such an individual relatively small doses of whisky or brandy, half an ounce, every three hours, from the beginning of the disease, in order to forestall the restlessness and mental disturbance which so often occurs when an individual is deprived of alcohol even in the midst of perfect health. Such cases as the following seem to prove the value of alcohol in this condition: A severe case of pneumonia was admitted to the wards of St. Timothy's Hospital. He was very delirious, and gradually became almost impossible to control, in spite of bromide and opium. It was then discovered that he was in the habit of taking large amounts of whisky. He was at once given half an ounce of whisky every two or three hours, and within a few hours was quiet and fairly rational. In a few days we thought he could do without his alcohol and stopped its administration. He almost immediately became wildly delirious and had to be restrained. The whisky was again renewed and he became quiet. He left the hospital happy in the fact that he was being given his usual dram.

In these cases a small dose, three ounces in twenty-four hours, is just as effective as a larger dose, and is safer. In an individual who has been used to taking large quantities, as much as a quart of spirits in twenty-four hours, the quantity can be reduced to 3 or 4 ounces in twenty-four hours without bringing on the typical nervousness which is characteristic of sudden total deprivation of alcohol. Large quantities which are taken in the ordinary day of such an individual act as a narcotic. The small doses recommended simply make the nervous symptoms less likely to appear.

*Second indication:* Delirium tremens. In certain cases of delirium tremens, but by no means in all cases, the small doses of alco-

hol are recommended. The large doses here again inhibit all of the functions of the body, and are deleterious. Certain men of large experience never give alcohol in delirium tremens, but it appears to me the better practice to use it as it seems necessary in the individual cases.

*Third indication:* Withdrawal of alcohol from the daily ration of the patient. In certain cases of advanced alcoholism, where there is extensive arteriosclerosis, as evidenced by degeneration of the heart muscle, of the kidney, and perhaps signs of degeneration of the central nervous system, it is good practice to withdraw the alcohol slowly.

While I believe that *sudden* withdrawal is the best practice in the vast majority of cases, I am sure that there are certain cases in which degeneration of the vessels or kidneys goes on rapidly if cessation is abrupt.

*Fourth indication:* Severe cases of diabetes mellitus. Diabetics apparently are able to burn up large quantities of alcohol, not only without detriment, but with great benefit, and in such cases, where it is necessary to give them occasional days of food of small caloric value, to be followed by oatmeal days, during the oatmeal days the alcohol can be used in large quantities with good effect.

In these same cases it can be used as a daily ration of moderate amount. Mild cases of diabetes are better off without alcohol.

Let us now consider the use of alcohol in certain conditions where time and custom have made its employment almost universal.

*The Infectious Diseases.* — Pneumonia, typhoid fever, scarlet fever, diphtheria, smallpox, and the whole range of serious infections, have until comparatively recently been synonymous with the use of alcohol, some physicians using it on the theory that it is a heart stimulant, a circulatory stimulant, a general stimulant, or that it neutralizes the toxemia present in the infections. Indeed, I take it that very few cases of infections are to-day treated without alcohol in some stage of the attack.

Basing my belief on a number of years work, I think that except in certain conditions alcohol in these cases at least is unnecessary, and also I believe it may be full of actual danger.

It is my custom now never to use alcohol in infections, unless, first, the person has been an alcoholic, or secondly, the administration of food is so difficult that small quantities of alcohol, 2 or 3 ounces of whisky or brandy in twenty-four hours, are given in the hope that it will be of some food value. It is *never* used as a heart stimulant, but it may be used as a narcotic; this is justifiable in certain cases, though I think there is scarcely any case which is not handled better by the judicious use of morphine or bromides as a narcotic than it is by alcohol.

*Pneumonia.*—Alcohol is not used routinely, but only as a nervous sedative, when the individual is a user of alcohol, as stated above. Twenty-seven cases, all under my care within the last three months, have been treated without alcohol. There was a mortality of 15 per cent, not quite as high as the ordinary mortality. It is not used as a food in this disease. A patient with pneumonia rarely suffers much from his under-nutrition. I have felt for a number of years that my cases—severe cases of pneumonia—do better with the administration of digitalis, ammonia, caffeine or strychnine without alcohol, and have carried out this plan in practice.

*Typhoid Fever.*—Alcohol is never used routinely in this disease. There are much better ways of increasing the food supply, even granting that alcohol can be utilized as food. I think it is valueless in the so-called typhoid state, with delirium, unconsciousness, and rapid pulse, unless this condition is the result of withdrawal of the usual dose of alcohol. I am aware that this statement may appear to some as the result of prejudice, but here again I use some real stimulant, such as camphor, caffeine, or ammonia, and not alcohol, I believe with benefit to my patients.

Scarlet fever and diphtheria, for the

same reason, do not call for alcohol in large doses, and I rarely use it.

An almost universal use of alcohol, especially by laymen, is to revive an individual in a faint, or after a hemorrhage or one who is in shock.

Alcohol is used here with the thought that it is a heart stimulant, or at least a circulatory stimulant.

Cushny says on this subject: "The action on the circulation of small quantities of alcohol, one-half to one ounce, may be favorable in certain conditions, by augmenting the strength of the contractions of the heart, but this action is so slight and inconstant that it is impossible to regard it as a basis on which serious therapeutics can be founded."

In practical every-day work I think the following statements will hold good. It is true that the spirits swallowed by an individual semiconscious from fright, shock, or hemorrhage will in many instances cause the individual to feel better.. He will be less excited, he will feel warmer, his pulse may indeed become fuller, but the after-effects are not always those to be desired. If a large quantity has been used, which is very likely to be the fact, the narcosis which follows may prevent the organism from regaining its usual tone, and may indeed turn the tide in the wrong direction.

In a chill an individual certainly feels warmer after the use of alcohol, but it is the warmth due to dilatation of superficial veins, and is not a true stimulation. It is much better to use ammonia, or caffeine, rather than alcohol in all of these conditions, because they are actual stimulants and have no bad after-effects.

*As an antiseptic.* Certain surgeons believe that alcohol is a most efficient antiseptic. Certainly it is used by many, and apparently with efficiency.

### CONTRAINDICATIONS.

First, as an appetizer. The time is perhaps past when the average physician will recommend to this patient beer, ale, porter, spirits, or even, whatever his personal habits may be, the seductive preprandial cocktail, for the purpose of whipping up a flagging appetite.

Such prescriptions are fraught with all the dangers which accompany and are a part of the habitual use of alcohol as a beverage. If an appetite is lost, it is gone because of some local or general condition. It is always a symptom. The cause of the loss of appetite must be sought for and corrected before one can hope to have any permanent disappearance of the symptom. To irritate the mucous membrane of the stomach with alcohol in order that the secretions may be increased is simply using a whip to a jaded horse. The animal may expire before the top of the hill is reached. The hill which causes a serious loss of appetite is as a rule a cruelly long and steep one. The grade must be lessened in order to reach the top safely.

Granting that the failure of appetite is due to some temporary ailment, and that more food will be taken and digested better after the use of alcohol in small doses (and this is by no means certain), is it worth while?

If the cause of the failure of the appetite is but temporary, loss of food will do no harm, indeed it may be beneficial for a short time, and the appetite will return when the cause of its failure has disappeared.

The subject who is given alcohol to whet his appetite is extremely likely to continue the use of alcohol, and at that in anything but small quantities. This is no fancy, but is proven by any number of cases which can be remembered by any one of us. I believe it is a great mistake to use in this manner this very dangerous remedy.

Second, use of alcohol as a food. It may perhaps be true that alcohol can be consumed as a food, but except as noted above in its use in infections or in diabetes, it should *never* be used as such. Other foods certainly have greater caloric value, and certainly are free from danger and less irritating.

Particularly pernicious is the thoughtless use of the various liquid foods found on the market. These were originally put upon

the market as a sufficient food. More lately, it is true, they are advertised simply as an adjunct. The laity, however, believe these are foods, and can be used as such. As a matter of fact, according to "New and Non-official Remedies," all of the so-called "liquid foods," "medicinal foods," or "predigested foods" as found on the market are solutions containing as the essential constituent *small* amounts of protein substance and carbohydrates, *preserved in alcohol.*

Those recommended by the Council do not contain less food value than milk. With one exception those recommended contain from 16 per cent to 20 per cent of alcohol by volume.

Let us understand what we are doing when we prescribe liquid beef preparation containing alcohol. We are giving food value of milk exclusive of the alcohol. That is, if an individual takes 8 ounces of one of these foods, he has taken at least theoretically the equivalent in food value of ½ pint of milk, plus *eight ounces of a liquid* equivalent in alcoholic strength to sherry wine. In other words, every time he is given half a pint of milk he is given half a pint of sherry wine.

Eight ounces of sherry wine is a sizable dose of this beverage.. Half a pint of milk is a small ration of food. We have caused our patient to expend in the neighborhood of 50 cents for food that could be obtained for 5 cents. Nor is this all. Suppose an individual is given a quart of a beef preparation a day, he is not given enough food to sustain him, but he is given an abundance of alcohol to intoxicate him. But the manufacturers say the preparation is not meant as a substitute for food, but only as a help. Is one drachm, one ounce, or two or three ounces of milk of much food value when mixed with an equal quantity of a strong alcoholic liquid? Are there not much better ways of administering food in any condition?

Personally I do not believe the administration of half a pint of a 16- or 20-per-cent alcoholic liquid valuable as a food, but if we do believe so, in all conscience let us be honest with ourselves and with our patients, and give alcohol in the form of a beverage, and food in some form in which it can be recognized.

Third contraindication, tuberculosis. In all stages of tuberculosis, alcohol is contraindicated. Certainly the tuberculous individual needs all his powers of resistance. If alcohol in any way lessens ability to stand fatigue, and this is abundantly proven by experiment and practice, it should not be used. I believe it is a mistake here to use alcohol to whip up the appetite in tuberculosis; any extra amount of food which may be taken from this cause is negative to the ill effects of the alcohol. It puts up a false standard, as indeed does any drug in this disease, magnifying the value of a remedy of at least problematic value at the expense of the actual removal of the toxic condition by fresh air and rest. The habit of giving habitual doses of alcohol in tuberculosis is certainly detrimental.

Fourth contraindication, nervous diseases. In functional nervous conditions the very great danger of establishing a habit far outweighs any theoretical value of the alcohol. To establish the habitual use of alcohol by advising or courting the use of the drug is little short of criminal.

Fifth contraindication. Exposure to heat and cold, such as is undergone by explorers in the tropics and the arctics, or even the moderate degrees of heat and cold of temperate climates, is followed by much more serious results when alcohol is taken than when it is not. This has caused arctic explorers to forbid its use. It has caused the Russian government to forbid the use of the national drink, vodka, and the abuse of alcohol by the working men of England is causing a serious contemplation of the limitation of its use at the present time.

Sixth contraindication, snake bite and other acute poisoning. The author has never treated a case of snake-venom poisoning. In a well-known author we can find these sentences: "When death is threatened from cardiac failure in poisoning by toxins, venom, veratrum viride, aconite, or other similarly acting toxic agents, whether of animal or vegetable origin, alcohol is an

important remedy, unless the poison, as in the case of an anesthetic, is physiologically so closely allied to alcohol that the small dose of alcohol becomes a reënforcing depressant. In acute depression it should be administered freely, not much diluted, and, if convenient, hot. From one to four ounces of whisky should be given, repeated every ten or fifteen minutes, until slight intoxication, convalescence, or death has resulted."

It appears to me that such a use of alcohol is worse than useless, and that either the intoxication or death, or both, are likely to occur when it is so used.

To narcotize an individual with a pint of whisky every hour in the presence of serious depressing disease is certainly not consonant with the practice of to-day. Can there be any doubt that excision of the part, local administration of potassium permanganate, and the administration of caffeine and ammonia in snake poisoning, are much more rational treatments.

Seventh contraindication. In normal health the use of alcohol as a beverage is pernicious in a high degree. Whatever the views of physicians and pathologists may be as to the direct causative influence of alcohol upon arteriosclerosis, sclerosis of the kidneys, or the liver, or the central nervous system, and whatever views exist as to the ability of the organism to burn up certain small quantities of alcohol and utilize it as a food, there is no difference of opinion as to the harmful physical effect of quantities of alcohol above the ability of the body to completely consume it. It lowers resistance to heat and cold and to infections, it diminishes the power to withstand physical and mental exertion, and above all it puts habitual users of alcohol in the position of either yielding to the increasing appetite for the drug or being constantly on guard, in order to prevent themselves from yielding.

I am well aware, of course, that many examples can be cited where men and women of attainment have been habitual users of alcohol, and such use has neither appreciably lessened their ability nor shortened their lives. These, however, are the exception to the very general rule. It is our duty as physicians to stand straight, to maintain the truth, and to warn our patient and the public of the truth, namely, that the habitual use of alcohol, whether in large or small quantities, is pernicious, and fraught with much physical danger, to say nothing of the moral, domestic, and financial ruin which is sure to accompany its extensive use.

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## THE CLINICAL USE OF ALCOHOL.[1]

BY H. A. HARE, M.D.,
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There is certainly no drug which has been so carefully studied in the laboratory as has alcohol, and there is probably no drug which has been more frequently used, in large and small amounts, at the bedside than this medicinal substance. The older class of practitioners will remember that in their student days alcohol was always classed as a stimulant, meaning by this term a drug which is supposed to increase the force and vigor of the circulation by stimulating the heart, and possibly by also stimulating the vasomotor system, so that the blood-vessels were more contracted than before the drug was given. They will also recall the fact that the quickening of the pulse produced by alcohol was thought by many persons to be due to stimulation of the accelerator nerves. As one research after another came forth from the pharmacological laboratories, each one in accord in at least one point, namely, that alcohol was in reality a depressant rather than a stimulant, practitioners at first paid little attention to this conclusion, so opposed to their previously conceived ideas, and then when the weight of evidence became too great to be ignored, they either stopped employing

[1]Read before the Philadelphia County Medical Society, April 14, 1915.

alcohol as a medicinal substance, or they continued to do so after hopelessly attempting to coördinate laboratory researches, so accurate that they could not be criticized, with the results which they felt certain they had seen developed by its use in human beings who were ill.

One of the papers which has been presented to-night has, I think, made it clear that alcohol can no longer be considered as a stimulant in the crude sense in which that term was employed years ago, and I think almost every one, whether he be a laboratory investigator or a clinician, will, at the present time, agree with this view. So, too, the view has been brought forward, although held by certain investigators for many years, that alcohol in moderate amounts is burnt up in the body and in the process of this combustion gives force to the organism, and in certain instances, because of its easy combustion or oxidation, distinctly aids in the conservation of tissue. Not only does it do this by giving force but it saves the tissues, in that it is burnt up so readily that the less easily burnt-up tissues escape.

This being the case it is not difficult to reach the conclusion that alcohol, properly used, has a very definite position in the materia medica list, and can be used with advantage in certain cases of diseases which are characterized by great tissue waste, notably diabetes mellitus, typhoid fever, and certain cases of tuberculosis, and in certain stages of other maladies. I believe that it may be fairly stated that these are facts, and that those who are sweeping in their condemnation of alcohol as a remedial agent are, at this time, unable to present any evidence which can satisfactorily controvert these views; always bearing in mind, however, that this drug, like others, must be administered in doses which suit the needs of the patient in the particular stage of the disease, and the particular time of the day when he needs the drug. All drugs are given too much by routine and too little by careful adjustment to daily or hourly need, and alcohol does not escape from this abuse any more than its sister remedies. To make the bald statement that alcohol is useful in diabetes or valuable in the treatment of typhoid fever is almost as much of an error as to state that it is useless in these diseases. Such positive statements must be qualified by the additional information that it is useful if the proper kind of alcoholic fluid is selected, if the proper dose as to size is given, and if the proper time of administration is chosen.

It is interesting to note in this connection that there can be no question that twenty or thirty years ago the doses of alcohol which were administered were often far in excess of the patient's needs, and not infrequently were so large that they distinctly impaired his chance of recovery, because the system was forced to deal with amounts of this drug far in excess of its abilities, and the position of the patient was somewhat like that of a starved and feeble man who is forced to gorge himself with so large a quantity of soup that instead of making him better he becomes dangerously ill.

Alcohol has been modified in its dose probably more than any other commonly used drug, yet there still remain some conditions in which it is proper to administer large amounts, and failure to do so may result in failure to get a good result, the patient, therefore, missing an opportunity for recovery as completely as if he received doses of the drug which, to use a popular slang phrase, "soused" him. These conditions are some of them as follows: Patients who have prior to illness become accustomed to taking considerable quantities of alcohol every day—many of these patients will fail to get along well and possibly die if the physician does not think of the necessity of administering alcohol in some form. This is particularly true of those who suffer from pneumonia and typhoid fever as types of acute disease, and diabetes as a type of a chronic disease. Within the last ten days I have seen in consultation a man with an exceedingly severe attack of croupous pneumonia who failed to respond to any treatment that seemed indicated until, upon careful inquiry, it was found that he was a very free user of whisky. The adminis-

tration of an ounce of good whisky, every three or four hours throughout the twenty-four, at once produced improvement and in the end put him on the high road to recovery, although when it was begun his condition was so desperate that the case seemed almost hopeless.

In the last sentence I have used the term "good whisky." I do this advisedly, for this is one of the points which is of importance if we study carefully the use of this drug. I have repeatedly seen cases of various kinds for which alcohol seemed to be the very remedy needed, yet in which its administration failed to do good until it was given in a form which agreed with the patient. "Hospital whisky" may be well enough for ordinary purposes, but when a patient is seriously ill and every effort is to be combined for his recovery, the result may be determined by the choice of the form of alcohol. It is not sufficient to simply order "whisky." In country practice it may result in the patient receiving something which is equivalent to the so-called "Jersey lightning"; in hospital practice it may result in the patient receiving a combination, or blending, of several species of "Jersey lightning"; in still other instances the whisky may be so young that it is difficult for the patient's stomach to tolerate it, and this is particularly true in the case of straight whisky. In my experience standard blended whiskies usually agree with the patient very much better than a straight whisky, but I repeat that the blend should be a skilful one, for a badly blended whisky is more prone to do badly for a patient than is a straight whisky. In other instances, usually for only a brief space of time, a good brandy gives the best results, particularly when prompt, so-called stimulation or rallying of the patient is demanded, but brandy in my experience is not a good stimulant to be continued over a considerable number of days, even when given in smaller quantity and with an allowance for the difference in the actual alcoholic strength between it and whisky. It is less sedative in its effect, and if delirium is present is, I think, more prone, unless the doses are very large, to produce excitation than is whisky, which, if properly used in excitable cases, produces sedation.

In regard to the use of wines as stimulants during illness, I think it is pretty well recognized that none of them are suitable for continuous administration over many days. Port, which is one of the strongest of the wines, being a fortified wine is too sweet; the patient tires of sherry very rapidly; and champagne, even if an extra dry champagne is used, is very prone to upset the stomach.

There are at least two other phases of the action of alcohol which should be carefully considered from the clinical standpoint. I have already dealt with the fact that it gives energy and saves tissue. The other points deal with its influence upon the circulation, as we understand it in these more modern days, and its power in combating infection aside from any mere increase in vital resistance by energizing the body. Instead of believing that alcohol acts as a stimulant, increasing the force, vigor, and blood-pressure of the circulation, we now believe that the value of alcohol, so far as the circulation is concerned, lies in its ability to adjust the circulation so to speak, or, to use another term, its power to equalize the circulation. There can be no doubt that the influence of alcohol in re-establishing circulatory equilibrium is one of its advantages, and its circulatory effect is one which brings benefit to the patient in the congested areas of the deeply situated portions of the body, while the peripheral tissues which have been poorly supplied with blood are freely flushed with this fluid.

It is a common clinical observation that after the administration of alcohol the peripheral circulation is increased in the ordinary individual who is exposed to cold. The taking of alcohol warms the extremities by dilating the blood-vessels in the parts that are chilled and filling them with warm blood from the centers of the body. In fever when the trunk and deeper portions of the body are pyretic, alcohol, by moving the superheated blood from the

deeply situated organs to the peripheral portion of the body, not only equalizes the distribution of the blood in the body but by increasing the dissipation of heat so lessens fever, a tendency which is increased if, in addition, the skin, which has heretofore been hot and dry, becomes moist through dilatation of its capillaries. In the case of the person who is exposed to cold the distribution of the blood under the influence of alcohol is disadvantageous in that it causes him to lose too much heat. In the case of the patient who is feeble and febrile this effect of alcohol is useful in that it acts as an indirect antipyretic and thus reëstablishes the circulatory equilibrium, which is responsible for the improved appearance of many febrile patients when alcohol is properly given.

There is no need for the administration of alcohol in those types of fever which older practitioners are prone to call sthenic fevers. They are so short in their course that the body is not deprived of a great amount of energy and the fever does not run long enough to sap the vitality. Thus it is rarely needed in ordinary croupous pneumonia in a person who is non-alcoholic; and in the fevers of childhood, like scarlet fever, alcohol rarely serves a good purpose. There is no need in such cases for the administration of a drug which will increase the vigor of the body or give it additional energy, nor is there any need for administering substances which will be burnt up rapidly and readily add to the conflagration.

Before leaving this subject I would like to emphasize once more that alcohol does a great amount of good in many cases of prolonged fever by this method of establishing circulatory equilibrium. There are only two drugs which approach it in value for this purpose, possibly three, namely, atropine, camphor, and the nitrites. The nitrites are apt to act too suddenly and forcefully and are too fleeting; atropine stops the secretions which the alcohol often increases. The exact value of camphor is hard to determine.

Finally, let me bring forward the view that alcohol enables the man sick from a severe infection to combat that infection not only by providing him with a readily oxidized food, but that it in some manner as yet unknown seems to increase the phagocytic power of the blood and still more surely increases bacteriolysis. A number of years ago I carried out a series of experiments in cases of typhoid fever and tuberculosis in which I proved, at least to my own satisfaction, that alcohol distinctly increases the bacteriologic power of the blood serum, and presented the results of my investigation to the Association of American Physicians. Unfortunately, I was called away before the discussion was completed, and in the discussion Dr. Welch raised the question as to whether there were not certain elements of fault in the technique. The technique, it happened, was suggested or directed by Dr. Flexner, who was then in Philadelphia, and was actually carried out by some one who had no conception as to the character of the research that I was following; did not know that alcohol was being used; did not know that the blood was taken from a patient receiving alcohol; or when it was taken from a patient who was not receiving alcohol.

This brings me finally to the statement which, in these modern days, may be considered by some pharmacologists or laboratory investigators as somewhat "moss-grown." I still believe very firmly that in the presence of various forms of sepsis and severe infection the surgeons of thirty years ago were entirely correct in their firm belief that "quinine, iron, and whisky" were the best remedies for such persons, and when we recall the fact that the surgeons of thirty years ago saw more cases of sepsis in one year than a surgeon of to-day sees in a lifetime we must believe in their clinical conclusions if we believe at all in the axiom that experience teaches. Mainwaring and Ruh, and others, have shown that quinine increases phagocytosis, which may be an explanation of the old clinical observation that I have just quoted, and possibly I have offered an explanation as to bac-

teriolysis for the usefulness of alcohol and quinine in these cases.

So far as I know there is no laboratory evidence as to the value of iron, but those of us who have practiced medicine long enough have learned that while laboratory investigation is of the greatest possible value, in that it places before us new discoveries or explains old methods, it is often quite unable to explain clinical observations made so often by a host of careful clinical practitioners that their correctness cannot be doubted. No more interesting illustration of this can be adduced than the controversy which has raged about alcohol as a drug, at first recognized as of value and supposed to do good by acting as a stimulant, then condemned because laboratory investigations proved that it never acts as a stimulant but in one sense as a depressant, but finally we find that the original clinical observation that it was useful is correct when the drug is properly used, although we also find that the explanation of its value was originally erroneous.

We cannot afford to accept too quickly evidence that comes from the laboratory or from the bedside, nor can we afford to condemn universally a remedy which does not seem in the laboratory to do to a healthy dog what it does to a sick man. No better illustration of this can be afforded than alcohol given to a healthy man in distinction to alcohol given to man in disease. Given to the man in health, except under certain circumstances and in very carefully graded doses, it is harmful because it affords him something which he can burn up readily and thereby is prone to interfere with the proper oxidation of his ordinary foodstuff; whereas, given to a man in fever whose ability to assimilate food is impaired and whose circulation may be impaired and disordered, it provides energy, acts as a foodstuff, and regulates the circulation.

This discussion is designed not to loudly sing the praises of alcohol; it is intended to emphasize the point that he who utterly casts it aside deprives himself of a valuable tool at certain times; that he who uses it in excess does harm; but that he who prescribes it in proper form and in proper dose and at the proper time may consider alcohol one of his standard remedies just as he considers any other drug possessing activity capable of doing good.

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## TREATMENT OF INFLAMMATION OF THE UTERINE ADNEXA.

AMBERGER (*Beiträge zur klinischen Chirurgie,* Bd. 95, Heft 2) in view of his experience with inflammatory conditions of the uterine adnexa, having reported in all three series of cases, says that in all cases of salpingitis in which the course of the disease is clinically mild conservative treatment is to be recommended and operation considered only in case palliative treatment does not bring results.

However, in all cases of outspoken salpingitis with severe symptoms operation should be advised. Hesitancy about operation in the acute stage is not justified. If tubal disease is associated with appendicitis, both the tube and the appendix must be removed at operation. If it is found that peritonitis has been excited by tubal inflammation, operation must be delayed because it is known that the peritoneal involvement will be made worse by operation. Since we find it a great step in advance that conservative treatment of appendicitis is less and less resorted to, it is not easy to see why the treatment of pyosalpinx should continue in the old-fashioned way. The parallel between the two conditions is marked but not complete. Both threaten life and health to a great degree and both are curable by a relatively harmless operation. In each disease the organ involved is in most cases of no value to the patient, therefore it is unjustifiable to require the patient to submit to any form of palliative treatment which calls for a large sacrifice of time and money, especially when the organ will in only a very small percentage of cases be restored to normal condition.

# EDITORIAL.

## THE USE AND ABUSE OF SO-CALLED STIMULANTS.

Whether drugs commonly classed as stimulants really increase the functional activity of certain parts of the body has within the last few years been questioned by many clinicians. There can be little doubt that in some instances the stimulation is only apparent, the real condition being one of irritation, and this is particularly true so far as the action of so-called stimulants upon the nervous system is concerned.

Most of our readers are familiar with the fact that some surgeons employed strychnine in heroic doses fifteen or twenty years ago for the purpose of preventing shock, and that since then they have had a revulsion of feeling, going to the other extreme in which they taboo strychnine from the operating-room, forbidding its use either before or after the operation. That the administration of strychnine prior to an operation is, in the great majority of cases, an unwise procedure is undoubtedly true, since this drug increases the sensitiveness of the sensory portions of the nervous system, thereby exposing that portion of the organism to greater shock by psychic influence, by the effects of the anesthetic, and by the traumatism of the operative procedure. Even in instances in which the operation is necessary because of some severe injury from which the patient is profoundly depressed, it is exceedingly questionable whether strychnine should be used to rally the patient before the operation is performed.

On the other hand, the exclusion of strychnine from the list of remedies which may be employed to rally the patient after an operation is, we think, almost as far from the correct position as was its employment in very large doses fifteen or twenty years ago. If the drug is as harmful as some persons seem to believe in this type of case, the very large doses at one time used would, it seems to us, have produced such definite and excessively disagreeable or alarming symptoms that they would have been stopped by those who first used them before their employment became fairly popular. If, as is now held by some, a hypodermic injection of 1/40 or 1/20 of a grain of strychnine to rally certain patients after operation is harmful, surely the administration of as much as 1/10 or even ¼ of a grain, as was sometimes used at the time of which we write, would have developed symptoms so unmistakably the result of an error in judgment that the use of the drug would have been condemned earlier than it was. In other words, the question arises as to whether in the utter exclusion of strychnine we have not gone as far along the wrong road in one direction as we went far afield along the wrong path in another direction. This question can be asked and debated by each reader of the GAZETTE with some advantage to his patients, in our opinion.

There is another aspect of this matter which is equally important and which concerns the physician more than the surgeon: it is the question of the employment of strychnine in cases of functional nervous disorder arising from overwork, from the exhaustion induced by one of the acute infectious fevers, like typhoid fever, or the profound depression or excessive nervous excitement sometimes met with in cases which have suffered severely from epidemic influenza. In these instances, as in so many others, it would seem to be wrong to denounce the use of strychnine in any dose and equally erroneous to urge its universal employment. In certain instances the profound nervous depression or exhaustion which ensues after the acute illness has passed by seems to respond very well to the use of strychnine and nux vomica in very large doses, the patient being able to take these amounts without any of the ordinary manifestations induced in the average individual by large quantities of this drug. We are inclined to believe, however, that

these large doses of a nervous stimulant or irritant during or immediately after illness are an abuse of a drug and render the patient prone to the development, later on, of an excessive nervous irritability or excitability which is just as incapacitating and distressing as the profound physical and mental depression to which we have referred. As we have pointed out on another occasion, we learned many years ago, during the first great pandemic of influenza, that the use of full doses of strychnine during the acute illness not infrequently rendered the patient more difficult to control, and, when the disease attacked old persons, not rarely induced a state of mild delirium, which, in some instances, became sufficiently well developed to make the patient difficult to control.

In some instances it would seem that the best results are attained by the combination of moderate doses of one of the bromides with moderate doses of strychnine or nux vomica, since by this means the irritating effect of the strychnine on the nervous system is diminished and the stimulant effect is permitted. It may be said by some that this is a point which cannot be satisfactorily proved by any accurate method of observation, and such a statement is in itself largely true. The reply can be made, however, that "the proof of the pudding is in the eating," and that some of these patients are more comfortable and improve more rapidly under this combination of drugs which appear to be opposed to one another than when either of these drugs is used alone, since the bromides often seem to increase or induce depression in the same way that strychnine or nux vomica induces, or exaggerates, nervous excitement. The effect produced by this combination in some patients may be compared with the excellent clinical results which are so universally recognized in the employment of the bromides and caffeine for the relief of nervous fag and certain types of headache. The fortunes that have been made by the manufacturers of proprietary medicines, who have placed upon the market combinations, depending largely for their effects upon their bromide or caffeine content, may be added to the regular professional experience that such a combination is therapeutically effective, for if it were not effective the demand for such preparations would not exist. On the other hand, from a theoretical standpoint it may be argued with much force that to combine caffeine and one of the bromides in the same prescription would seem to be ordering two drugs so diametrically opposed in their effects that each one would act as a physiological antagonist to the other, with a result which might be called *nil*.

After all this the question of the employment of stimulants and sedatives in the conditions which we have named, and in the states which are closely associated therewith, is in turn not to be governed by hard and fast laws of inclusion and exclusion, but by being sufficiently skilful to determine the exact needs of the patient, and then to determine the exact combination or dose and the frequency of administration which will meet the necessities of the case.

## TOBACCO HEART AND ITS TREATMENT.

This is a theme which has been discussed by word of mouth and in type with a fair degree of consistency ever since the use of tobacco was instituted. In the majority of instances the communications made to medical and lay literature upon this subject have emanated from the pens of those who have been bitterly opposed to its use, chiefly because it seemed to them to possess some nebulous deleterious effect upon the morals or upon the heart and nervous system. We believe that it was Carlyle who made the remark that the Puritans opposed "bear baiting" not because they wished to save the bear suffering, but because they desired to deprive fellow human beings of a source of amusement. Many of the communications of the type just referred to have been written upon a basis identical in character. The number of articles which have been published on this subject in a true scientific spirit can be counted on the fingers of both

hands, and in practically every instance, as the writer of this editorial pointed out thirty years ago, communications on the subject have been made by those who were either enemies or friends of the weed.

There can be no doubt that when tobacco is swallowed in considerable quantity it is capable of acting as a powerful drug. There can also be no doubt that if nicotine is given hypodermically, or intravenously, it is an exceedingly powerful poison, but it is a fact that most of the nicotine in tobacco is destroyed by the heat when tobacco is smoked, and that the amount of extract of tobacco-leaf swallowed, by those who chew tobacco, is too small to produce any effects in those who are accustomed to it, and rarely does more than disturb the digestion.

There can also be no doubt that the laity, as well as medical men, fully recognize that there are tobaccos and tobaccos, in that they speak of a mild or a strong cigar, by which they mean that the former produces little if any effect when smoked upon the general system, whereas a strong cigar, particularly in those who are by nature susceptible and who have not acquired immunity, produces very definite and marked effects. There can be no question, therefore, that in some instances, by reason of undue susceptibility and the use of strong tobacco, particularly if it is used in excess, deleterious results may be produced not only upon the digestion and the circulation, but possibly still more frequently upon the eye, since every ophthalmic surgeon of large experience has seen cases of tobacco amblyopia. Often, however, tobacco amblyopia occurs in those who use alcohol to excess, and not only are exposed to this poison when so employed, but have suffered in years gone by from syphilitic infection, so that it is hard to determine how much the tobacco is actually responsible for the symptoms.

Every one knows that when tobacco is used for the first time by the average youth it produces a sense of depression and nausea with a lowering of blood-pressure and considerable sweating. How much this fall in blood-pressure is due to the direct action of the tobacco and how much it arises from the nausea which is induced by the drug is difficult to determine. Injected directly into the blood stream nicotine causes, on the other hand, intense vascular spasm with an extraordinary rise in blood-pressure, but this has no bearing upon the effects of tobacco when it is chewed or smoked, and we are by no means sure that if tobacco is used in moderation, and this term varies with each individual, it is capable of being responsible for high blood-pressure or in exaggerating the pressure which has become abnormal from other causes.

When we come to the consideration of what is commonly called "tobacco heart" we have in mind a condition which is not clearly described by this term and which has never yet been definitely outlined and limited. We have always considered that by this term a physician meant to indicate that there was cardiac irritability, irregularity, extra systoles or dropped systoles. We certainly have never believed that cardiac feebleness or cardiac hypertrophy was induced by tobacco, and, in the great majority of instances, the condition which we have called "tobacco heart" has occurred in young men accustomed to violent athletic exercise in the summer, having plenty of fresh air, and who smoked to excess when they returned to their studies or to their business occupations with little exercise and little fresh air. It is true that older men leading a sedentary life, smoking continually, eating a hurried midday meal, washed down by one or two cups of coffee, sometimes present this train of symptoms, but they are comparatively rare, and the cause of their trouble is not single but multiple.

Concerning a case of "tobacco heart" it may, therefore, be said that the physician must consider the quality of the tobacco used, the amount of its consumption, the natural susceptibility of the patient, his acquired susceptibility, and, furthermore, he must consider the times at which tobacco is used—that is, whether it is used after a meal, when its effects are always less than

at other times, or whether it is employed through all the waking hours. He must also exclude all of the more common causes of cardiac irregularity, such as recent illness from any one of the acute infections, or disturbance of the circulation from chronic infection, before he is justified in determining that tobacco is the dominant factor in producing the evil symptoms which his patient experiences.

Our attention has been called once more to this matter by a most interesting, able, and complete article, from its literary and clinical aspects, by Dr. Harlow Brooks of New York in the *New York Medical Journal* of April 24, 1915, who believes, and we agree with him, that those who suffer from true or false angina pectoris should use this drug little, or not at all. He thinks that in many cases a reduction in the amount may suffice to relieve the patient, or instructions as to the time of day at which the drug is to be used will be adequate. Here, again, we are in entire accord with him.

This whole problem is one which must be dealt with on the basis of common sense mixed with scientific knowledge and observation. In the Progress columns of this issue will be found Dr. Brooks's conclusions which he has reached after a careful analysis of the subject and which are worthy of careful consideration.

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## CORSETS, PTOSIS, AND THE SACRO-ILIAC STRAIN.

An interesting and practical as well as an amusing article bearing this title has been contributed to the *Boston Medical and Surgical Journal* of April 22, 1915, by Dr. Robert M. Green. There can be no question that even in the recent past the profession has not been sufficiently alive to the frequency and importance of ptosis and the sacroiliac strain, and, as Dr. Green points out, there have been many instances in which women have been subjected to pelvic operations when in reality the proper method of relief would have been measures directed against these two causes of abdominal discomfort. In some instances it would seem that a physician considers ptosis of the abdominal contents out of the question unless the abdomen is protruding and its wall somewhat relaxed. While it is quite true that in this type of case some ptosis is practically always present, it is also true that there are many women who have no protrusion of the abdominal wall who, nevertheless, suffer from this condition, either because they are so lean that the pads of fat designed by nature to aid in keeping the abdominal organs in place have been absorbed, or in other instances the configuration of the lower part of the chest, of the vertebral column, or of the pelvis is such as to cause displacement of the abdominal and pelvic organs. These cases of ptosis, in patients who do not suffer from a relaxed abdominal wall, are difficult to treat as compared to the other type of patient, since it is practically impossible to apply any belt or abdominal support which will give material relief. In other words, the state of such a patient may be considered rather as a fault of development than a condition which has been produced by pregnancy or by obesity followed by loss of flesh. Green goes so far as to state that a majority of women, from various causes, suffer from ptosis of one or more of the abdominal viscera. He claims that the reasons for the prevalence of this condition in women are a poor muscular development of the abdominal wall, child-bearing, which stretches the abdominal wall and then leaves it relaxed and unsupported, and, last of all, improper corseting, which presses the viscera downward and prevents the normal use of the abdominal muscles, which, of course, are thereby predisposed to atrophic changes. As he well points out, the first two of these causes are predisposing; the last has been the determining cause. Women belonging to the primitive types of humanity rarely if ever suffer from these conditions, particularly if they lead an outdoor life, but his statement that peasant women and others who have never worn corsets nevertheless often develop ptosis because they fasten heavy skirts

tightly around the body is undoubtedly true.

Dr. Green then gives vent to his emphatic disapproval of modern corseting, saying that the corset worn by the majority of women is a relic of Victorian barbarism and that it tends to produce a matronly figure that was the ideal of feminine beauty in the age of Jane Austen, crinolines, and the steel-plate engraving lady. He speaks of this corset as "absolutely and unutterably pernicious." He claims that all corsets that lace behind are bad, and that many corsets that lace in front are also bad; that to be a good corset it must lace in front; its lower border should come to the level of the trochanters and no lower; its upper border should not reach high enough to touch the breasts; it should be of suitable size, as lightly boned as possible, and should be equipped with garter straps. We think the average woman, whether she has ptosis or not, will differ strenuously from Dr. Green in his conception of how high a corset should extend. Dr. Green also emphasizes the fact that a bad corset intelligently applied is often better than a good corset improperly applied. He thinks that a corset should always be put on with the patient lying down with a small pillow under the sacrum and hips and none under the head; that the garter straps should next be fastened to the stockings to prevent the corsets from sliding up; that the corsets should now be laced from below upward, tightly below, and tied moderately tightly at the level of the umbilicus, and tied very loosely at the top. Here, again, we think that Dr. Green will have some difficulty in making the gentler sex follow his advice.

That Dr. Green is evidently one of much experience in the treatment of these conditions is shown by some of his other conclusions. He points out that enteroptosis is found most frequently in short, plump, rotund women with hollow backs and the hyperfeminine type of figure, and in multiparæ; whereas nephroptosis is seen chiefly in tall, scrawny women with flat backs and the masculine type of figure. In the first type of heavy women there is also considerable difficulty and discomfort from sacroiliac strain and from the development of flat foot, the weight becoming too great for the arch of the foot, particularly when shoes supposed to be fashionable are worn. These cases of sacroiliac strain and flat foot often complain greatly of backache and pain in the calves of the legs and thighs and also in the knee-joints. These conditions can be corrected by wearing a proper shoe, which, instead of having a narrow toe with a high beveled heel, should have a broad toe and a low, flat heel. Various exercises to strengthen the muscles of the abdomen, of the leg, and of the tissues of the foot should be resorted to, and the use of a properly-fitted belt or adhesive strips should be employed to support the sacroiliac joint.

Finally, from his clinical observations, Dr. Green, who belongs to the Gynecological Clinic of the Boston City Hospital, states that unrecognized or untreated ptosis is probably the commonest cause of feminine disability and gynecological failure.

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## THE PRINCIPLES ON WHICH ARE BASED THE OPERATIVE TREATMENT OF TRAUMATIC CEREBRAL LESIONS.

The true surgery of head injuries is defined by Trotter (*British Journal of Surgery*, April, 1915) as "a harmonious synthesis of the experience of the experimentalist, the neurologist, and the surgeon." He regards the brain as an organ encapsulated by the dura and the skull, and notes that if a portion of the dura be removed, as in a decompression operation, the brain never becomes adherent to the skin, but invariably the opening is obliterated in a few weeks by a new formation of dura having all the normal characteristics, densely fibrous, a glistening inner surface, impenetrability by cerebrospinal fluid, and ready separability from the overlying skin.

The dural capsule is absolutely inextensible, thus differing from all other capsules. Moreover, the cranial inextensible capsule

fits the organ so closely that almost the whole of the contained space is indispensable for the maintenance of normal function.

A hemorrhage as such neither irritates nor destroys the brain substance; the effect produced is due solely to interference with the circulation of the part of the brain affected. Changes which occur in the circulation of the parts adjacent to a progressive hemorrhage fall into three clearly marked stages.

The stage of compensation is that during which there is being taken up the narrow margin of space within the skull which is not indispensable for the normal functioning of the cerebral circulation. The low pressure of the venous blood and cerebrospinal fluid makes these fluids particularly subject to easy displacement.

The next stage, that of venous obstruction, is due to pressure upon the veins of sufficient degree to restrict venous circulation until finally a condition of stasis may be reached. The blood in the capillaries can no longer be discharged into the veins and become venous in character, so that the brain tissue in the affected region is in a state of cyanosis. This venous congestion produces a pronounced and characteristic alteration of function, namely, an increased excitability of the cerebral tissue.

If the hematoma still further increases in size and excites greater pressure the blood is squeezed out of the veins and capillaries and the brain, and assumes the dead-white color of anemia. The affection will then show the white zone adjacent to the hematoma, while between this and the normal brain would be the blue coloration of venous obstruction. As a result of the capillary anemia the brain cells are paralyzed. So the paralysis following head injuries usually indicates a compression which has advanced to the stage of capillary anemia.

The compression of the brain produced by hemorrhage is essentially a local process. As the hematoma increases in size, the zones of anemia and venous obstruction extend correspondingly and affect a larger and larger amount of the brain. However advanced such case may be there will be some parts of the brain less affected than that primarily pressed on.

As a result of force applied to the skull there is a sudden diminution of cranial capacity followed by an immediate recovery of the normal volume. The physical consequences of a sudden deformation of the skull and of the transit of a bullet are identical in respect to the circumstance that at the moment of the injury there is a very great increase of intracranial tension. The force is conducted throughout the skull owing to the inertia of the whole brain, and the whole brain is subjected to a violent compression. There can be no differential yielding of the various fluids; the compression acts as much on the capillaries as on the veins, and an instantaneous anemia of the whole brain is produced, with the necessarily resultant appearance of widespread paralytic symptoms. As the compression is momentary only the anemia is momentary only in its profoundest degree, and tends to pass off spontaneously through reflux of blood, owing to the elasticity of the skull and vessels. Complete restoration of the circulation is naturally slower, since the anemia of the bulb itself leads to a secondary fall of blood-pressure. The clinical condition corresponding with this anemia is known as concussion of the brain, which is characterized by its immediate onset, by the fact that it is made up of paralytic symptoms referable to all parts of the brain, by its tendency to spontaneous recovery, and by the absence in the fatal cases of any constant or characteristic post-mortem findings. When the head is violently struck by a force distributed over a considerable surface there is an inbending of the bone and often fissured fractures, the bone returning to its normal position immediately upon cessation of the causative force. The result of the application of force is that the skull strikes the underlying brain and may bruise or lacerate it—direct contusion. The impulse tends to displace the part of the skull which is diametrically opposite the part struck, producing polar contusion. In ad-

dition, the brain between the sites of direct and of polar contusion, transmitting as it does a considerable force, is liable to stress and distortion, which may cause contusion of its substance. It is observed that foci of contusion are apt to be distributed especially around the ventricles and the Sylvian aqueduct, due to the sudden driving of a relatively large amount of fluid from the lateral ventricles.

The modern bullet fired at close range has a shattering effect. There is no differential yielding of the cranial contents, which behave as though they formed a continuous homogeneous medium, filling the skull. The energy of the bullet is transmitted by this medium throughout the skull, against the inner surface of which an enormous pressure is consequently brought to bear.

As the velocity of the bullet lessens the transmission of energy will fall off first in those directions which make the widest angle with the path of the bullet. That is to say, the explosive effect will disappear first from the region of the entrance wound. With a further decrease of velocity, the explosive effect will ultimately come to be limited to the region of the exit wound.

The brain is always compressed when the bullet passes through it, with resultant anemia, and hence the phenomena of concussion. It is remarkable how little damage the brain may sustain from this energetic and instantaneous compression. As long as the cranial vault remains intact any extensive disorganization does not usually occur. Injuries associated with localized fracture, such as are produced by blows inflicted by small or pointed objects or by bullet wounds of low velocity, are essentially local, since there is an absence of any widespread inbending of the skull; there is no sudden anemia, and hence consciousness may not be lost. Indeed, with a small entrance wound the extent of damage to the brain is apt to be underestimated owing to the relative absence of concussion symptoms.

There are three possible ways in which intracranial injuries may produce symptoms, namely, by direct destruction of cerebral tissue; by reactionary swelling-edema; by causing hemorrhage. The direct destructive effects are comparatively rare, bullet wounds being the commonest source. All contusion and laceration is followed by edema, which causes pressure on the neighboring veins, with the result that further exudation is favored and the edema tends to spread. Where numerous foci of contusion are present a condition of more or less general edema of the brain results.

The exudation comes in the first instance from the damaged capillaries of the contused brain. It is therefore at a pressure which, while it may be greater than that in the veins, cannot be greater than that in the capillaries. It is clear, therefore, that such edema cannot produce capillary anemia. A characteristic feature of the edema is the absence on the whole of definite paralytic symptoms. It is known experimentally that a comparatively slight increase of pressure below the tentorium is much more serious in its effects than much greater increases above it. Moreover, circulatory disturbances in the bulb that can be produced by an edema may have the gravest effect on the vital centers there.

A certain amount of edema always follows hyperacute compression and produces the mild irritative phenomena—headache, restlessness, etc.—of the so-called period of reaction. Where there has been considerable contusion, these phenomena are likely to increase and be added to until, by about forty-eight hours after the accident, the classical picture of "cerebral irritation" is produced. It is important that this stage should be clearly recognized as a mild wide-spread compression, due to reactionary edema causing venous obstruction and consequent excitability of the brain. It is one of the conditions for which a purely decompressive operation may be called for.

Hemorrhage is roughly classified as extradural, subdural, intracerebral, and intraventricular. Probably most hemorrhages not external to the dura are of venous origin. Subdural hemorrhage is the commonest cause of the severer cases of com-

pression, the bleeding usually coming from the veins passing from the brain to the longitudinal sinus. The bleeding may be acute or chronic. In its acute traumatic form hemorrhage readily and rapidly extends over the whole of the hemisphere. Cortical hemorrhage is apt to remain localized and develop slowly under and in the meshes of the arachnoid. It is the ordinary cause of Jacksonian epilepsy coming on within a week or two after injury. In cases of marked cortical laceration the hemorrhage may assume the diffuse subdural type.

Intracerebral hemorrhage is a comparatively uncommon and very grave form. The lesion has been observed in patients with thick, strong skulls and where the injury applied was unaccompanied by fracture. Intraventricular hemorrhage, beyond the reach of surgery, may occur primarily into the ventricle or burst into it from the cerebral substance.

In actual practice the success attending efforts at reaching and controlling traumatic intracranial hemorrhage with evacuation of clot is by no means brilliant. The commonest mistake is unnecessary delay. It should be remembered that compression is a local condition, and that to make a diagnosis of compression of the hemisphere, hemispheric symptoms alone are necessary. The sole elements necessary to the diagnosis of compression are the progressive course and the appearance of a single definite paralytic symptom.

Moreover, many patients are lost from a failure to realize the frequency of contralateral lesions. There is no single principle of greater importance in the treatment of head injuries than that which lays down the necessity of exploring both sides of the skull upon the least indication.

Moreover, even though the hematoma be found, if it be large and if it has been under high pressure its removal should be supplemented by a decompressing operation. There are certain types of patients presenting themselves with symptoms of grave and extensive hemispheral compression. Examination shows hemiplegic signs (flaccidity of limbs and face, alteration of reflexes, elevation of temperature on paralyzed side). Pupilary changes appear from midbrain pressure (pupilary contraction succeeded by dilatation on side of lesion, followed by similar changes on opposite side), and then irritative bulbar symptoms (stertorous respiration, slow pulse, high blood-pressure).

The lesion is necessarily hemorrhage of the extradural, subdural, or intracerebral type. In the extradural form there is usually a clear interval of consciousness between the concussion and the onset of coma, lasting from half an hour to several hours, the patient complaining of headache and giddiness. Before the onset of coma the headache gets worse, and the patient becomes restless and possibly violently excited.

In the subdural form of the acute type the interval between concussion and the onset of other symptoms may be short or altogether absent. Sudden development of a wide-spread venous congestion of the cortex, or a rapidly spreading hemorrhage, is apt to cause an extreme development of mental excitement, often of maniacal violence. The patient may suddenly pass from the quiescence of concussion into this state of active and even dangerous excitement. After lasting for an hour or two the excitement is replaced by coma. These conditions require immediate operation. A large opening is made in the temporal fossa. The dura should always be incised to see if there is intradural bleeding or increased intracranial tension. If the hematoma is intradural, a larger bone opening is made where needful. If after the clot has been evacuated the brain bulges strongly into the opening, a definite decompression is necessary. An intracerebral hematoma usually becomes obvious after a large opening has been made and the dura freely incised, either by showing its dark color through the brain substance or by actually bursting its way to the surface. The cavity in the brain may be gently irrigated with hot saline solution. Drainage may usually be dispensed with.

There is a comparatively common class of cases in which there is evidence of severe injury, usually including fracture of the base with external hemorrhage and possibly orbital extravasations. If there be severe concussion the patient passes without a distinct interval into a state of more or less deep coma which is often not profound. Painful stimulation may call forth a partial response. Some irregular rigidity of the limbs is common. The pupils may show either irritative phenomena (contraction or fixation) or paralytic phenomena (fixation). Irritative bulbar signs are apt to occur, but in the incomplete form. The picture indicates a wide-spread damage to the brain, with perhaps a small amount of scattered hemorrhage, but no large hematoma. Such cases, when of a severe grade, are usually fatal, the cause of death being a gradual failure of the bulbar centers, often combined with lung complications.

Subtentorial decompression to relieve the bulb has not been widely successful. If the coma should become profound or be persistent for several days or weeks, this would in itself constitute a localizing symptom of pressure in the superior chamber, and should be met by a temporal decompression.

Irritative phenomena indicate a condition of venous obstruction of the affected part of the brain with consequent increased excitability. Cases exhibiting these phenomena may be roughly grouped: the first group including those of severe head injury with mental excitement. Passing from concussion the patient appears to be conscious and responsible, but is resentful of control, aggressive, insolent and refractory, or may become even dangerously violent. Indeed he is in a condition of a man fighting drunk. It will usually be needful to wait for paralytic symptoms before a diagnosis of profuse subdural hemorrhage can be made.

In the classical cases of cerebral irritation characterized by the patient being coiled on his side with flexed limbs, severe headache, at times vomiting, at times twitchings of the limbs, occasionally restless and delirious, noisily or uncontrollably so, the condition is one of moderate congestion due to the pressure of an edema, which in turn is the consequence of multiple foci of contusion, and possibly small hemorrhages. Spontaneous recovery usually occurs. It is particularly likely to be followed by various sequelæ, such as persistent headache and giddiness, failure of memory, alterations of disposition, and even epilepsy. The condition may persist for weeks unchanged. These cases if at all severe should be subjected to a temporal decompression.

Cases which present as the chief or sole manifestation signs of a localized cerebral lesion are mainly instances of cerebral hemorrhage and demand operation to evacuate the hemorrhage as soon as the diagnosis can be made. Cases of compound depressed fracture from direct violence usually show a remarkable absence of concussion and the evidence of distant injury. In all of these cases, from the very nature of the injury, foreign substances may have been driven into the brain; such may be fragments of bone, scalp, or clothing, and occasionally disorganized brain tissue.

## ARTERIOVENOUS ANEURISM.

Osler (*Lancet*, May 8, 1915) observes that better than any other disease aneurism demonstrates how borderless are the boundaries of medicine and surgery. Instancing this by the fact that whilst he is talking on the most surgical of all its aspects, there is probably a surgeon not far away who whilst practicing the best possible prevention against aneurism is giving a syphilitic patient an injection of salvarsan. After an extremely interesting historical review and a description of the anatomical varieties and resulting changes and physical signs of aneurism, Osler observes that an aneurism may remain unchanged for years and interfere little if at all with the patient's health and vigor; this being particularly the case with the cervical and axillary vessels. He also had one case which rowed in races and lived a very athletic life, and this for years. Spontaneous healing may occur, the orifice closing between the artery and the vein,

whilst sudden death is noted either from heart failure or from embolism, or from rupture with fatal hemorrhage. In the crural vessels progressive disability may result in varicose veins, thrombosis, and ulceration. When left too late the condition of the vessels is unfavorable to operation and especially favorable to thrombosis —the surgeon's chief danger. Finally, the vascular tissue involved in the aneurismal area may take on a nevoid growth. Apart altogether from the arteriovenous aneurism, the entire vessels of a limb, arteries and veins, may take on an active growth. This has happened in certain cases of venous aneurism of the vessels of the head.

As for treatment, it is conceded that these aneurisms should be operated on as they offer small prospect of spontaneous cure, although they often remain stationary for a long time and cause relatively little trouble. This is the opinion of Subbotich based on his experience in the Balkan war. Attention is called to a new technique in vascular surgery developed largely by Carrel, and having followed directly upon animal experimentation. Indeed, Osler holds that up to date vascular surgery cannot be done in any hospital where the surgeons have not full opportunities to experiment upon animals. Matas's figures are quoted to the effect that of 225 cases of aneurism 206 were successful. Attention was called to the fact that there will be large opportunities for further surgical development afforded by injuries received during the present war.

# REPORTS ON THERAPEUTIC PROGRESS.

## ON HEADACHE ASSOCIATED WITH INTRANASAL DISORDERS.

PEGLER writes in the *Lancet* of February 27, 1915. He says that in character and degree a nasal headache may range widely between a continuous dull ache or occasional neuralgia, and a fulminating and throbbing seizure radiating pain to the teeth and along all branches of the trigeminal nerve. In such an attack the scalp is hot and exquisitely tender—a condition persisting after the pain has abated—and there are often photophobia and alarming cardiac depression. The writer has met with this extreme form in cases in which an incurved middle turbinate was pressing forcibly against the septum, and especially in which other factors aggravated the initial trouble. Although when more than one cause is in operation such a headache is rightly to be regarded as a compound one, the writer's experience is that if a proximate cause constituted by hard contact can be discovered and removed the attacks will not recur.

The complaint of a sensation of tightness, if not of actual pain, at the root of the nose as the starting-point of the headache often serves as a useful guide to the salient cause, and to the discovery of latent pressure or suppuration; sometimes, also, there is slight swelling and a bluish tint of the skin over the affected spot. If the lesion commences on one side, this disposition of the pain generally follows its extension toward the vertex; thus a unilateral character is given to the nasal headache, rendering it liable to be confused with true hemicrania or migraine. Absence of the classical signs of this complaint must be the guide in making a diagnosis, for if the patient can vouch for having experienced the fortification scotoma antecedent to the headache, admits a hereditary tendency, or has suffered from some other member of this symptom-complex, it is right to suspect that migraine is complicating the case. The writer has never yet seen genuine migraine in nasal disease as Grünwald and others say they have, though the semicharacteristic symptoms of certain neuroses, such as the circular band pain of neurasthenia and the clavus of hysteria, may at least be closely simulated in nasal cases. A neurotic patient, aged 21, referred to the writer by a

distinguished neurologist, at whose hands she had undergone a course of medical treatment and who suffered from a peculiar pain compared to driving a nail into the vault of the skull (clavus hystericus), gradually became free after the writer had relieved the pressure exerted by a depressed and deflected septum against an inferior turbinate on the left side; the clavus was slightly lateralized correspondingly to the nasal lesion, a fact of diagnostic interest.

It is somewhat humiliating to have to admit, in face of so much positive evidence as to cause and effect, that no intranasal appearance, though strongly suspicious of setting up a painful excitation, and for all one can tell potentially pathogenetic, can safely be regarded as pathognomonic. A fairly reliable prognosis may sometimes be arrived at by spraying the suspected area with cocaine and watching for temporary relief, or by a cautious insinuation of the nasal probe into the olfactory cleft, but the sign may ostensibly portend much pain which is non-existent, just as in some other case the intensity of the pain may seem to us out of proportion to the objective signs. This brings one again to the impression that the essential foundation is a constitutional predisposition; this term is our main resource, failing a better, in the absence of definite knowledge regarding a human problem at present awaiting solution; but we are little better informed as to the underlying cause of susceptibility to the nasal neuroses, catarrhs, and asthma, often enough the accompaniments or alternatives of headache. Hence the confirmation of our diagnosis depends theoretically upon what has been called the "therapeutic test," and this works out well enough in practice; for, depending upon the matured judgment that comes of long experience, one rarely operates on a properly chosen case without success.

The treatment of these conditions is not necessarily surgical in all cases; if the pain of nasal headache is consequent upon obstruction due to catarrh or inflammatory swelling, reducible by simple but effective measures, it disappears *pari passu* with their application. When the original source is apparently in the nature of pressure there is generally a concurrent sensation of stuffiness in the higher recesses of one or both of the nasal cavities, if the middle turbinate is hypertrophied and cellular, or if the corresponding region of the septum is deflected or thickened, seeing that these abnormalities seriously hinder the free upward passage of the inspired air. In such case surgical treatment of the septum or turbinates can only do good, especially if Casali's view of causation here is correct (cerebral venous obstruction). Intermittency of pain, so common in this class of case, may be attributed to the influence of the vasomotor system on the nasal blood-vessels and spaces controlling the variations between tumefaction and comparative collapse of the mucous membrane.

The modern and now perfected operation of submucous resection of the septum is of great value in the treatment of irregularities of the structure that lead the way for headaches, and often facilitates a conservative treatment of the middle turbinates by rendering the septum negative as an opposing agent unless the former is very large or bulbous so as to press against the outer wall. One may learn much from the study of cases in which a cure has been effected by operation performed at intervals according to the requirements of the situation. The writer has recently found it necessary to resect both middle turbinates a year after a previous operator had performed the submucous operation on the septum, only partially relieving a severe neuralgic headache; the right turbinate had become cystic, but the opposite organ was wing-shaped and had been flattened against the outer wall of the fossa by the septal deflection; the final effect was satisfactory. More recently he has successfully adopted a plan of gently forcing the flattened middle of the turbinate away from the outer wall and causing it to be retained there for a sufficient length of time by suitable means; this, of course, is not always feasible. In another patient it was necessary to reduce both inferior and middle turbinates suc-

cessively at intervals during a period of three years before entire freedom from headache was attained. The result made it evident that each turbinate had by pressure contributed a part toward the elicitation of pain, and that this might therefore be termed a case of complex nasal headache.

So far the writer has desisted from resecting a middle turbinate in a doubtful case when he could perceive no actual contact with a neighboring structure, but surprises sometimes await the rhinologist in this branch of his art. A distinguished confrère has related how he once fell into serious disfavor through declining to operate in response to a patient's reiterated request, his excuse being the very cogent reason that the writer has indicated. Following this persistent refusal another surgeon was prevailed on to step in and resect the turbinate, after which the headache ceased.

Relief usually follows quickly upon the elimination of pressure unless the region is plugged after operating, when it may be slightly delayed. The writer has once or twice had an opportunity of noting the effect of gauze dressing left by mischance in the olfactory cleft. The pain set up by this foreign body has not differed very materially from what is usually described when both opposing surfaces are nasal and vital. After clearing away the gauze the relief obtained is also essentially the same in all respects. He mentions this fact because it seems to refute an opinion that has been expressed that turbinectomy in such an instance acts by producing an effect through the vasomotor system and not by the removal of pressure upon the sensitive nerve terminals. The recovery from headache after surgical treatment may be somewhat tardy in some patients, in which case a short course of bromides or a few doses of phenacetine with caffeine are very helpful in accelerating the cure.

In conclusion, the writer would like to state once more that where there is the complication of an element of nasal disorder, with a dyspeptic, bilious, or other example of functional headache, the elimination of that nasal element should greatly ameliorate the severity of the general suffering, not only temporarily, as some assert, but permanently. In short, setting aside the purely cerebral organic headaches, and the numerous other forms which are beyond the scope of the rhinologist, there remains a large field of utility in this particular sphere which is always within reach.

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## A NOTE ON THE USE OF LIQUID PARAFFIN IN INFANTS.

HILL, in the *Archives of Pediatrics* for February, 1915, reaches these conclusions:

1. In the chronic constipation of infants, liquid paraffin in large doses gives the best results the writer has yet obtained.

2. In severe gastroenteritis and ileocolitis its use was disappointing, possibly because too small doses were given.

3. In conjunction with lactic acid bacilli very remarkable results may be obtained in that group of diseases which are caused by the action of putrefactive or allied poisons absorbed from the intestines and finding a favorable, susceptible, sympathetic nervous system.

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## PUERPERAL ECLAMPSIA.

The *Clinical Journal* of March 10, 1915, contains an article by JARDINE in the course of which he states that the first procedure is to get the lower bowel cleared of its load by giving a copious enema. Then the stomach is washed out to clear it of any irritating contents, and a large dose of mag. sulph. is left in it, and with this may be combined a large dose of chloral and bromides. Another method of giving chloral and bromides is by the rectum. In this series of cases these drugs were given by the stomach. The cleansing of the stomach will relieve it of its irritating contents, and the action of the magnesium sulphate will clear the bowel from above, while the sedative action of the chloral and bromides will allay irritation in the nervous system. The urinary system is also at fault, and to deal with it the writer gives saline

transfusions of a couple of pints, usually under the breasts. The saline solution which he uses contains one drachm each of sodium chloride and sodium acetate to the pint. This acts upon the kidneys and helps to flush the toxins out of the system, but he also makes use of the skin to free the system of the toxin by causing sweating. Beneath the bed on which the patient lies there is a large copper pan which is filled with hot water. The patient is also surrounded with hot-water bottles. A hot pack will act in the same way, and in private cases it can be made use of. The writer warns us that hot-water bottles must be carefully covered, and even then it is safer to have a blanket between them and the patient's skin. In eclamptic patients, the vitality of the tissues is so low that, if a hot-water bottle comes into direct contact with the skin, a burn may be caused. In applying poultices, this must also be borne in mind. Some years ago, the writer had a patient sent into hospital with the whole of her loins badly burned from poultices having been applied over the kidneys. In an ordinary case the poultices would not have caused any damage to the tissues. In another case, one of the writer's residents used chloride of ethyl to freeze the skin of the breast before inserting the transfusion needle. The result was that wherever the ethyl touched the skin the parts sloughed, and it was many weeks before the patient could be dismissed. This was an act of mistaken kindness which the author hopes none will ever repeat.

Sweating may be obtained by giving pilocarpine hypodermically, but the depressing action of this drug renders it dangerous, and it also causes a copious secretion of mucus in the bronchial tubes. More or less edema of the lungs is always present, and an increase of mucus in the bronchial tubes is very serious, especially in a comatose patient. The writer has seen patients die of acute edema of the lungs, so a drug which may cause this is to be avoided.

To control the fits chloroform is often administered, but it was not used in any of his cases for that purpose. The toxin affects the liver, and chloroform may intensify that effect, so it should only be given when an operation is necessary. By some morphine is used in large doses, but the writer only uses it where there is great restlessness. He believes it tends to retard the activities of the kidneys and the bowels. He has seen a patient die of what apparently was morphhine poisoning, although the doses given were small compared with what is sometimes recommended. Many years ago he tried veratrum viride, which was first introduced in America, but the preparations then in use were very unreliable, so he gave up its use; but when the active principle, veratone, was introduced, he began using it again with extremely good results. It is most useful in cases with very high tension and pulse-rate. Within half an hour of its injection the tension of the pulse is markedly reduced, and the rate generally falls by forty or fifty beats. After its use the fits generally cease. It was used in several of the worst of the cases in his series. The full dose is 1 Cc. hypodermically, but in some cases, especially in postpartum eclampsia, the effect may be alarming. At the writer's request Messrs. Parke, Davis & Co. have put it up in ½-Cc. doses, and he now uses it in those doses, repeating in a few hours if necessary. If alarming depression is caused, a hypodermic of strychnine will counteract this. The writer has used this drug in a large number of cases, and he has no hesitation in strongly recommending its use, especially in cases with a high tension and quick pulse. Bleeding from the arm he has frequently made use of in cases of high tension, but since he began using veratrone he has given up bleeding. As he has already stated, it lowered the pulse-rate by forty or fifty beats and also the tension, and in most of the cases the fits ceased after its use.

In regard to the obstetrical treatment, the writer does not interfere, but leaves nature to take its course. In one case in the series delivery was effected by forceps, as the labor was prolonged. The child had died. In another case, in which there was unavoidable hemorrhage from placenta

previa, version was done because of the latter condition.

It is now pretty generally recognized that forcible delivery in cases of eclampsia does not give as good results as are got by leaving the delivery to nature, and only interfering if there is delay. Of course there are exceptional cases like the one with placenta previa where interference is called for, but, broadly speaking, the less interference the better.

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## ON THE THERAPEUTICS OF ORGANIC EXTRACTS.

In the *British Medical Journal* of February 6, 1915, HERTZ relates some personal experiences of the effect of adrenalin in asthma. He says that before Dixon's researches had shown that adrenalin caused dilatation of the bronchi by stimulating the sympathetic bronchodilator fibers it seemed incredible that the drug could have any favorable effect, and it was therefore with profound skepticism that he gave himself an injection for the first time during a severe attack of asthma. He used 3 minims of 1-in-1000 adrenalin chloride. The result was most remarkable. Within a minute his breathing became easier and less noisy, but he felt extremely uncomfortable, his pulse became rapid, and his hands tremulous. In five minutes the asthmatic paroxysm was over and his breathing absolutely quiet, but the unpleasant symptoms did not disappear for another ten or fifteen minutes, when he fell asleep. On the next occasion he tried 2 minims with an equally good effect on the breathing, but with less marked discomfort and tachycardia. Since then he has used 1 minim or half a minim for slight attacks, and 1½ minims for exceptionally severe attacks. Complete relief to the asthma invariably occurs within five minutes, and the small dose produces no other symptom.

It appears as if the adrenalin has a selective action on any muscle which is in a pathologic state, the reverse of what is produced by the action of the drug; thus a dose which would be without action on the normal bronchi and is without action on all other organs, produces dilatation of abnormally contracted bronchi. The effect often lasts a considerable time, a single injection being generally sufficient to give a good night, but in bad attacks it may be necessary to repeat the injection if the asthma returns in three or four hours. However severe the asthma is, it is rare for as much adrenalin to be required in twenty-four hours as is commonly recommended for a single injection, so that the danger of any vascular degeneration resulting from its regular use is very small, unless the attacks are extremely frequent. Dr. Hertz has never observed any effect on the blood-pressure when these small doses are injected. The injections in his own case are infinitely more efficacious than any other treatment he has tried; he has, in fact, only had a single bad night as a result of asthma since he first used the drug three years ago, and that was on one occasion when he had broken the syringe. He has been able to confirm these observations in several other patients, but it must be admitted that some asthmatics respond less well to adrenalin, and a few are entirely uninfluenced by it.

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## THE EMPLOYMENT OF BORIC ACID IN DISEASES OF THE SKIN.

The *Journal of the American Medical Association* of March 13, 1915, contains an article on this topic by MONTGOMERY. As to the use of boric acid in acne, he says that an initiatory soaking with a hot boric acid solution is often of great benefit in the local treatment of acne. For this purpose it is desirable to apply the solution hot and to use a large quantity of it, so that the heat will be retained for a considerable time. Three heaping tablespoonfuls of boric acid powder are added to the usual quantity of water used in washing—about 3 quarts. This makes approximately a 3-per-cent solution. The patient should then sit, leaning over the bowl, and soak the face well with towels wrung out of the hot solution. As the solution grows cooler, more hot water may be added. It is often

advantageous so to soak the face for ten or fifteen minutes. It softens the epithelium and acts as an excellent detergent, removing the grease and many of the microörganisms, and decidedly increases the efficiency of resorcin or sulphur application.

Pyogenic infection of the skin is a convenient term to employ for a number of different affections caused by either staphylococci or streptococci. In many of these the susceptibility of the individual plays an important, even a dominant, part, and the constitutional condition must be met by measures appertaining to diet and general medicine. Topically, boric acid and its preparations are of great value, but frequently, as before mentioned, in a subsidiary or adjuvant state.

Moist heat, together with a non-irritating antiseptic, is the topical therapeutic indication in the primary stage of active congestion in furuncles. This indication may be met by employing gauze dipped in hot saturated (4-per-cent) solution of boric acid, and enveloped with oiled silk to retain the moisture and the heat. This is similar to a poultice, but is not so good, as it is not so bland and does not retain the heat so well; it, however, is often sufficient, and is easier to apply. An admirable poultice for this purpose is made by mixing boric acid powder with starch paste. The preparation of this is taken up later.

There are some special kinds of furuncles that deserve more detailed mention.

Furuncle of the edge of the eyelid, hordeolum or stye, is one of the most exasperating, painful, and it may be one of the most persistent of troubles. It begins as a little red point on the ciliary border, and in about three days a white center shows in the red swelling. It opens, a little core is expelled, and healing takes place. In about a week, at another part of the edge of the lid, another red point appears that goes through the same stages. At times, instead of styes coming singly, a number appear bordering both lids, and then the affection is most distressing indeed. Long ago Hardaway pointed out that styes may be due to infection from the scalp, and that when seborrhea capitis is present it should be treated. Furthermore, many of the patients, suffering from styes, have blepharitis ciliaris, which is frequently an expression of the same seborrheic habit.

In the treatment of styes the writer has usually come out fortunately by ordering persistent bathing and soaking for half an hour twice a day with warm saturated solution of boric acid, and after each soaking to rub in a salve of one-per-cent red mercuric oxide in vaselin.

Suppurative folliculitis of the vibrissæ of the nares is another pyogenic affection in which boric acid may be employed with advantage. This folliculitis is a most tantalizing affection, and is often combined with cracking of the mucous membrane at the anterior angle of the nares, constituting one of the causes of red nose. These lesions may also plague in another way, by furnishing a convenient entrance for the streptococci of erysipelas. An efficient manner of treating this folliculitis is to set before the patient a tin cup of saturated solution of boric acid, kept hot by placing it over the flame of a spirit lamp. The patient takes pledgets of absorbent cotton, dips them in the hot solution, and pushes them into the affected nostril, repeating this during ten or fifteen minutes till the tissues are well softened, and the crust softened and loosened. Calomel 12 per cent, or xeroform 12 per cent, in vaselin, is then rubbed in. The procedure may be repeated two or three times a day. Care must be taken both to soak thoroughly and anoint the fossæ behind the nose tip, as these hollows are a favorite residence for germs in this affection. Epilation may or may not be necessary.

Streptococcic infection of the skin when it appears as impetigo contagiosa frequently justifies its name of the impetuous disease, or the quick striker. Like all the streptococci, those that cause impetigo contagiosa love fluid, which they cause to pour out as serum from the papillary blood-vessels. This sticky serum forms heavy crusts that constitute an excellent protection for the underlying anaerobic bacteria.

One of the chief therapeutic indications is to remove these crusts without doing any damage to the inflamed skin. This may often be best accomplished by applying a boric acid starch poultice. The making of this poultice is a simple matter, but it is often the simple matters that are the most neglected. It is made in the following manner:

Take ordinary, common, lump, laundry starch and pulverize it. This pulverization is to be done before measuring. Dissolve one slightly heaping tablespoonful of the pulverized starch in two tablespoonfuls of cold water. Add to this one coffee-cupful of boiling water, stirring rapidly until the mixture is a thick paste. To this paste add a tablespoonful of boric acid, free from lumps, and stir well until thoroughly mixed. Fold the warm jelly between layers of thin muslin or cheese-cloth, and apply as hot as can be borne.

A good poultice should not be too thin, or it will dry, nor too bulky, or it will run; it should be slightly less than a finger thick. In order to prevent the borders drying and sticking to the surface, they may be greased with vaselin, oil, or zinc ointment.

This poultice is not gummy like a linseed poultice, is cleaner looking, and retains heat just as well. Besides the foregoing use, such a poultice has a multitude of applications, sometimes being employed hot, sometimes cold, as pointed out by Sabouraud. Sabouraud rightly objects to the disrepute into which, of late years, poultices have fallen, and asserts that many of the objections emanate from men who slavishly follow a popular cry. It is true that antiseptics, among those who are imperfectly grounded in bacteriology, assume many fantastic and doctrinal forms, and that there is no scoffer nearly so sneering as the one with imperfect knowledge.

When, by means of this poultice, the crusts are softened and loosened, they may be gently removed. This removal is often best accomplished by rubbing in a salve containing an appropriate antiseptic, such as ammoniated mercury. The following ointment is an excellent one for the purpose:

℞ Ung. hydrargyri ammoniati, 15 Gm.—½ ounce.
Ung. zinci oxidi, 30 Gm.—1 ounce.

M. Use twice a day both to clean and dress the affected surface.

The real efficient antiseptic in the above is the ammoniated mercury, a remedy familiar to every skin clinic, in which naturally streptococcic infections are among the daily visitors. The 10-per-cent ointment of the Pharmacopœia, however, is too stimulating, and the zinc oxide ointment both dilutes it and modifies its asperity.

As a general lotion for more wide-spread use in every scattered pyogenic infection of the skin, a saturated solution of boric acid in dilute alcohol serves admirably. It is harmless, it is clean, does not stain, and is not disagreeable in either appearance or odor, and because of the alcohol cutting the fat of the cutaneous surface, both the alcohol and the boric acid are permitted to act effectively as antiseptics.

Another pyogenic infection due, in at any rate the majority of instances, primarily to streptococcic infection followed by staphylococcic fouling, is the painful affection in the neighborhood of the nails called run-around, paronychia, or felon. When the affection has gone to the length of suppuration, it must be lanced, but before this occurs the process may be aborted by appropriate treatment. Both as an abortive measure, and as an antiphlogistic antiseptic measure, a dressing of a combination of boric acid and liquor alumini acetici may do excellent service. A lotion is made of:

℞ Liq. alumini acetici, 30 Cc.—1 ounce.
Acid boric sol. sat., 300 Cc.—10 fluid-ounces.

M. Employ warm to bathe the finger, and also as a wet dressing.

Gauze soaked in this solution is wrapped about the finger, and then an amply fitting rubber finger-stall is drawn over it and retained by a not too tight bandage.

Liquor alumini acetici is among the best of the mild antiseptics, and is gradually coming into favor in surgical clinics. It

must be carefully prepared, and should be diluted about ten times. The water employed in its dilution is not an indifferent matter, as that containing carbonates throws down a heavy gelatinous precipitate of aluminum hydroxide. As the foregoing prescription is put up by a druggist, and with distilled water, this mischance is avoided.

Ulcus cruris is almost always a streptococcic infection on a leg in which the resistance is lowered by circulatory disturbances due to varicose veins. These circulatory disturbances not alone lower the resistance, but they increase the susceptibility to streptococcic attack by increasing the amount of fluid in the tissues. As has been before mentioned, the streptococcus is an ardent lover of fluids. These are not only causative factors in ulcus cruris, which has a most complicated etiology, but the mention of the edematous condition of the tissues and the presence of streptococcic infection serve to elucidate why these ulcers are so irritable, so watery, so heavily crusted, and why they have, when neglected, such a bad, penetrating odor. The irritable condition of the tissues precludes the employment of all strong antiseptics. Nothing will clear off the crusts, deodorize the lesions and inhibit the infection so well as a boric acid starch poultice. This naturally does not constitute the alpha and omega of treatment in this complicated and highly interesting disease condition, but it does form a most welcome help in some of its incident conditions.

Used either alone or combined with other powders, boric acid is very valuable in many discharging diseases of the skin. An excellent powder is made of equal parts of boric acid and talc, or of equal parts of starch, zinc oxide, and boric acid.

The boric acid ointment of the Pharmacopœia contains about 8 per cent of boric acid, while Lister's ointment is much stronger—about 16 per cent. Boric acid ointment is an excellent non-irritating preparation with a multitude of uses. It is an ointment that, more generally than any other, is well prepared, and this is a point of importance when the druggist who is to put up a prescription is not known, as often ointments are wretchedly made. In seborrheic conditions this ointment will sometimes agree when those more usually employed fail.

The presence of boric acid in a great number of proprietary remedies and pharmacopœial compounds is also a proof of its usefulness as a topical application.

It is well, occasionally, to review what help we may receive from the humbler members of our Pharmacopœia, as they sometimes may aid us when the more dramatic ones fail. The practice of medicine is the study of life, and life is composed of little things, and these little things we cannot despise. It was a favorite saying with the late Professor von Leyden: "For the patient there are no small things."

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## BENZOL TREATMENT OF LYMPHOID LEUKEMIA.

The *British Journal of Children's Diseases* for February, 1915, contains an article by H. D. and J. W. Rolleston on this topic. They remind us that the treatment of leukemia by benzol was originated by von Korányi, who based it on Selling's clinical and experimental observations that benzol poisoning produces leucopenia, which persists after the cause is removed. Clinically, benzol poisoning produces purpura hemorrhagica, aplastic anemia, almost complete absence of blood platelets, and progressive leucopenia. In Selling's two fatal cases the total leucocytic count fell to 480 and 140 per cubic centimeter. Benzol appears to inhibit the leucoblastic tissues.

Barker and Gibbes have recently collected fourteen cases of myeloid and three cases of lymphocytic leukemia treated with benzol, and since then Parkes Weber reported the failure of benzol in a man with myeloid leukemia, and Calvert a case of chronic leukemia successfully treated with benzol; in his patient, a man, the total leucocytic count gradually fell from 128,000 to 6000. Korányi, at the International Congress in London, 1913, referred to eighty

known cases of leukemia treated by benzol and to twenty-three papers on the subject. The effect of benzol appears to be less rapid than that of *x*-ray exposures. Milne's experiments on dogs showed that in small doses benzol stimulates both erythroblastic and leucoblastic tissues. If these doses are persisted in for some time the leucoblastic tissue is worn out and the leucocytes decrease. Clinically he tried the treatment in seven cases, though in only three did he continue it long enough to justify any conclusions. He found that it acted equally well both in the lymphoid and myelogenous types. In moderate doses it not only destroyed circulating leucocytes and prevented the formation of new cells in the leucoblastic tissues, but also stimulated erythrocyte formation and so tended to increase the red cell and hemoglobin counts. It was not, however, definitely curative, as a relapse soon occurred when the drug was stopped. He thought the treatment should be avoided when the case was very acute, with fever and a very high count, also in nervous subjects, and particularly in cases with a high degree of leukemic retinitis.

The terminal leucopenia in the case reported by the Rollesters, though remarkable, is not unparalleled. Spiegler has recently reported a case, and quoted others from the literature, in which the leucocytes in myelogenous leukemia dropped almost to zero before death. In Spiegler's own cases they numbered 1400 and then 400, and in two others they fell from 998,000 to 1720, and from 56,000 to 5300, and then to 200.

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## ON THE THERAPEUTICS OF ORGANIC EXTRACTS.

The *British Medical Journal* of February 6, 1915, contains an interesting article by GRÜNBAUM on this vital topic. Considering the suprarenal glands he says we must remember that they consist of two parts which have very different functions: the medulla, which elaborates the material which affects the sympathetic system; and the cortex, which the writer has reason to believe possesses a controlling influence over growth and the development of the reproductive system. A number of years ago a paper appeared by Sequeira and Bulloch which pointed out that children who had hypertrophy or adenoma of the cortex of the suprarenal glands were of abnormal size—a boy of ten appearing to be about eighteen, and becoming sexually mature at a very early age. Basing himself on this, he fed several undersized and apparently otherwise normal patients upon dried suprarenal cortex with the hope that it would lead to an increase in their stature; but the results in every case were negative.

The dried medulla, or its active principle adrenalin, may be used for a variety of purposes: (1) In order to diagnose suprarenal inadequacy; (2) to supply the secretion of the medulla in cases in which the secreting power of the gland is temporarily paralyzed or permanently damaged; (3) to control hemorrhage from the stomach; (4) as an injection to raise the blood-pressure.

In order to diagnose suprarenal inadequacy, the blood-pressure of the patient should be measured accurately on several occasions, and then 12 grains of dried suprarenal should be administered three times a day for four days; if a material rise in pressure be observed, the drug should be stopped and the blood-pressure measured again to see whether it once more falls. If the rise during the administration by the mouth is considerable, the diagnosis of suprarenal inadequacy is fairly certain.

The evidence upon which this is based was obtained sixteen years ago, when it occurred to the writer that good treatment for hematemesis would be the administration of suprarenal gland by the mouth. Before adopting this line of treatment it was essential to find out whether the administration of the gland by the mouth led to a general rise of blood-pressure, because if it were to do this the treatment might do more harm than good. On taking suprarenal gland in large doses the writer found that his blood-pressure was not raised, and on trying it on patients he found that it was only in cases of Addison's disease that the

blood-pressure went up; this led to his using it as a diagnostic method.

In cases of Addison's disease suprarenal may be administered by the mouth, in order to supply some material which is wanting; but it is quite useless to order 5 grains three times a day; if any good is to result large doses must be administered—20 or 30 grains three times a day, continued indefinitely.

Occasionally it is wise to give adrenalin during temporary paralysis of the secreting power of the suprarenal gland, such as occurs in diphtheria and possibly other toxemias, whilst an injection of adrenalin hydrochloride has become the regular treatment by some prior to the injection of salvarsan, which is said to cause fall of blood-pressure, owing to its inhibitory effects upon the suprarenals.

In the writer's opinion, adrenalin hydrochloride is probably the best drug to control hemorrhage in gastric ulcer.

He has already mentioned that it does not cause a rise of blood-pressure. If it is to be administered with any chance of success it must not be given three times a day; that is worse than useless. Repeated small doses (say 1 Cc. of 1-in-1000 solution) every hour are required, because after its removal there is a tendency to reaction, and this can be prevented by keeping small quantities of the drug in contact with the damaged vessel and thereby maintaining its contraction.

As an injection to raise the blood-pressure, it has been used in certain cases of shock, and frequently in pneumonia. How far it is useful as a cardiac stimulant is a question which the writer is not able to answer. He trusts that we may hear of some experiments made in order to decide this question. He would be much interested to hear whether any success can be recorded in the treatment of hemophilia by adrenalin. Quite a long time ago he made a statement that in his experience it was useless, and the cases which have been recorded in which it is stated that adrenalin stopped the hemorrhage of hemophilia have never stood investigation. It must be remembered that a case can only be considered one of hemophilia when it occurs in a male and when there is a definite history of the maternal grandfather, or possibly of the maternal grand uncle, having suffered from the complaint.

The application of adrenalin to the nasal mucous membrane in hay-fever is apparently occasionally of great value, whilst in asthma hypodermic injections may produce miracles.

The physiological action of pituitary suggests a great number of uses in therapeutics. Since it acts on plain muscle directly and constricts the arterioles it may be used with advantage in all cases of a temporary fall in blood-pressure. Repeated injections are practically useless, therefore it is not of much value if the cause of fall in blood-pressure cannot be overcome rapidly. Physiologists agree that the extract does not lead to any contraction of the renal arteries, and therefore the injection causes an increased flow of blood from the kidneys and an increased secretion of urine, but how far this increased secretion of urine is accompanied by an increased excretion of metabolites is a question which has not been decided. Nevertheless, pituitary extract is indicated in cases of edema and threatened uremia.

Since pituitary extract causes contraction of the plain muscle, it would be of use occasionally to make the uterus contract. Certain parts of the pituitary gland possess a substance which increases the secretion of the mammary gland, but whether this has been used in practice the writer knows not. With the exception of the use of the gland for raising blood-pressure and meeting shock, the writer has had very little experience of it except in those cases in which there has apparently been some atrophy of the gland. This, we have been told, leads to a deposition of fat and often to altered mental condition; slighter cases come under the heading of Dercum's disease. The difficulty in treating these is the fact that reliable extract of pituitary or dried pituitary gland is very costly; and, just as in Addison's disease the administration of a small

dose of suprarenal daily by the mouth is useless, so, too, small doses of pituitary prove useless when the pituitary gland is atrophied, whilst large doses, as the writer has already said, cost a great deal of money. Nevertheless, in two cases patients have taken comparatively large doses with apparent benefit—that is to say, their weight has decreased whilst the mental condition has improved. In one of these the diminished activity may have been temporary, as the writer hears the patient is now able to lead a normal life without taking the daily dose.

When the pituitary gland secretes more than a normal amount, there is apparently a great stimulus to growth in certain parts of the body, especially in the tissues, and this leads to the condition called acromegaly. During the hypertrophic stage the administration of pituitary would probably do more harm than good, and there seems to be some similarity between what takes place with the thyroid and pituitary, although the older views, that the pituitary gland was able to take over the function of the thyroid and that the thyroid was able to take over the function of the pituitary gland, are no longer held; nevertheless there seems to be this similarity—not infrequently after hypertrophy of the thyroid, which leads to exophthalmic goitre, atrophy occurs and causes myxedema, whilst in hypertrophy of the pituitary gland some degenerative process takes place and leads to its atrophy, and in this latter stage the administration of pituitary gland leads to improvement.

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## THE TREATMENT OF PERNICIOUS ANEMIA BY SALVARSAN AND NEOSALVARSAN.

In the *British Medical Journal* of March 6, 1915, BRAMWELL recalls the fact that in March, 1911, the writer published in the *British Medical Journal* two cases of pernicious anemia in which great improvement resulted from the intramuscular injection of salvarsan, and on June 22, 1912, and May 24, 1913, he published in the same journal additional papers showing the future progress of these cases and giving particulars of 10 additional cases in which the same method of treatment was employed.

He now records the progress of the cases previously reported and the results in nine additional cases treated in the same way. These 21 cases include every case of pernicious anemia he has personally treated by salvarsan or neosalvarsan, with the exception of three cases which have quite recently come under observation, and in which sufficient time has not elapsed to show the effects of treatment.

One case, which was at first diagnosed as pernicious anemia and was treated by salvarsan, but which proved to be a case of malignant disease of the stomach and spleen, and three cases of pernicious anemia seen once in consultation in which salvarsan was advised, but in which the writer does not know if the treatment was employed or not, are not included.

Since he introduced the arsenical treatment of pernicious anemia in 1875 he has had a large experience of the disease. He has notes, more or less complete, of 141 cases. Excluding seven cases in which arsenic was not given, the 21 cases treated with salvarsan or neosalvarsan recorded in this paper, and the three cases treated by neosalvarsan which have quite recently come under observation, there remain 110 cases treated with arsenic by the mouth in the form of Fowler's solution. Of these 141 cases, 70 were hospital and 71 were private patients.

The impression which has been made on the writer's mind by the comparative results obtained in the treatment of pernicious anemia by arsenic by the mouth, given in the form of Fowler's solution, on the one hand, and by salvarsan or neosalvarsan, given intramuscularly, on the other, is decidedly in favor of the latter plan of treatment.

*The immediate result of arsenic by the mouth.* Of the 110 cases (hospital and private) treated by arsenic given by the mouth in the form of Fowler's solution, in 36 cases (32.7 per cent) there was no improve-

ment; in 22 cases (20 per cent) there was slight improvement; in 40 cases (34.5 per cent) there was marked improvement; and in 14 cases (12.7 per cent) there was complete (? temporary) recovery.

*The immediate result of salvarsan and neosalvarsan.* Of the 21 cases treated by salvarsan or neosalvarsan, and recorded in this paper, in 6 (28.5 per cent) there was no improvement; in 3 (14.2 per cent) there was slight improvement; in 5 (23.8 per cent) there was marked improvement; and in 7 (33.3 per cent) there was complete (? temporary) recovery.

*The ultimate result of arsenic by the mouth.* Of the 110 cases (hospital and private) treated by arsenic given by the mouth in the form of Fowler's solution, in 12 cases (10.9 per cent) the ultimate result is not known; in 4 cases (3.6 per cent) the patients remain fairly well; in 2 cases (1.8 per cent) the patients remain quite well; in 92 cases (83.6 per cent) the patients have died. Of the 92 fatal cases in this series, 85 died from pernicious anemia and 7 from other causes (4 from pneumonia, one from heart disease, one from cerebral hemorrhage, and one from hemorrhage from the bowel).

*The ultimate result of salvarsan and neosalvarsan.* Of the 21 cases treated by salvarsan or neosalvarsan and recorded in this paper, in 1 case (4.7 per cent) the patient remains fairly well; in 5 cases (23.8 per cent) quite well; in 15 cases (71.4 per cent) the patients have died. Of the 15 fatal cases in this series, 13 died from pernicious anemia (in one of these death was due to bronchopneumonia, which developed ten days after the first and only injection of neosalvarsan), and 2 from other causes (one from acute croupous pneumonia and one from tuberculous disease of the pleura, peritoneum, and intestine). In the case in which death was due to bronchopneumonia, the bronchopneumonia occurred a week after the administration of the salvarsan; whether the treatment had anything to do with the production of the bronchopneumonia it is, of course, impossible to say. In Case 12 the pernicious anemia was complicated with acute combined sclerosis; in Case 21 with a very bad heart; in Case 20 the uterus was removed, during the course of the treatment, for profuse recurring menorrhagia (due to a fibroid condition of the uterus).

The average duration in months after the treatment was commenced in the two series of cases was as follows:

*A.* Of the 110 cases treated by arsenic given by the mouth in the form of Fowler's solution, the result is not known in 12 cases; in the remaining 98 cases (6 still alive and 92 dead) the average duration since the treatment was commenced is 14.3 months.

*B.* Of the 21 cases treated by salvarsan or neosalvarsan (6 alive and 15 dead), the average duration since the treatment was commenced is 12.5 months.

The comparison between the ultimate result in the two series of cases is not a fair one, for the length of time which has elapsed since the salvarsan treatment was commenced is very much shorter than that since the arsenical treatment by the mouth was commenced in the great majority of cases. Some, perhaps all, of the cases which are still living, and which have been treated by salvarsan and neosalvarsan, will probably relapse and die. The percentage mortality in the two series of cases is therefore, in the meantime, unreliable.

The same statement applies to the average duration in months after the commencement of the treatment in the two series of cases. In 5 of the cases treated by arsenic by the mouth the duration was 165 months, 110 months, 90 months, 70 months, and 63 months respectively. The long duration in these cases materially affects the general average. Until the cases which still survive (6 cases in the series treated by arsenic in the form of Fowler's solution given by the mouth, and 6 cases in the series treated by salvarsan or neosalvarsan given intramuscularly) die, it is impossible to give an accurate comparison of the total duration after treatment in the two series of cases.

Further, unless large numbers are com-

pared, the comparison is apt to be fallacious, for the severity of the cases included in one series may be greater than the severity of the cases included in the other.

The comparative results in the two series of cases—110 cases treated by arsenic by the mouth, and 21 cases treated by salvarsan or neosalvarsan (intramuscularly)—are shown in the following tables:

IMMEDIATE RESULT.

| | No Improvement. | Slight Improvement. | Marked Improvement. | Complete (temporary) Recovery. |
|---|---|---|---|---|
| A. 110 cases treated by Fowler's solution. | 36, or 32.7% | 22, or 20% | 40, or 34.5% | 14, or 12% |
| B. 21 cases treated by salvarsan or neosalvarsan. | 6, or 28.5% | 3, or 14.2% | 5, or 23.8% | 7, or 33.3% |

ULTIMATE RESULT UP TO DATE.

| | Not Known. | Fairly Well. | Quite Well. | Death. | |
|---|---|---|---|---|---|
| | | | | P. A. | Other Causes. |
| A. 110 cases treated by Fowler's solution. | 12, or 10.9% | 4, or 3.6% | 2, or 1.8% | 85, or 77.2% | 7, or 6.3% |
| B. 21 cases treated by salvarsan or neosalvarsan. | .... | 1, or 4.7% | 5, or 23.8% | 13, or 61.9% | 2, or 9.5% |

In giving salvarsan or neosalvarsan in cases of pernicious anemia the writer has always employed the intramuscular method of administration: First, because in pernicious anemia, he thinks, a remedy is wanted which will produce a sustained and continued rather than an immediate and temporary effect. It seems probable that pernicious anemia is due to a toxin, perhaps absorbed in repeated doses from the stomach or intestines; but if this is so, one is quite ignorant of the nature of that toxin. Secondly, because in severe and advanced cases of pernicious anemia (in which the patient's hold on life is often very precarious and a very little thing will turn the scale) the intramuscular has seemed, perhaps erroneously, to him to be a less hazardous procedure than the intravenous method of administration.

In his earlier cases he employed salvarsan, and in the later cases neosalvarsan. The local effects produced by neosalvarsan are undoubtedly much less severe—much less local pain, inflammation, hardness, and swelling—than those produced by salvarsan. The constitutional effects were slight and not more marked in the cases in which salvarsan was employed.

The injections of salvarsan and neosalvarsan were in some cases followed by a slight rise of temperature and pulse, and in some cases by vomiting. The rise in temperature was usually from one to two degrees Fahrenheit. In the cases treated by salvarsan the rise in temperature was usually most marked on the third or fourth day after the injection, and coincided with the greatest intensity of the inflammatory hardness and swelling in the buttock. The vomiting was chiefly seen in the cases in which neosalvarsan was given—it was, perhaps, due to the novocaine, heroin, or morphine which was administered before the neosalvarsan was injected. The local inflammation produced by salvarsan was usually relieved by an ice-bag applied locally. A dose of novocaine, heroin, or morphine was usually given before each injection of neosalvarsan, and was repeated, if necessary, two hours after the injection, and again if the pain was not relieved.

The writer doubts whether neosalvarsan is so effective in the treatment of pernicious anemia as salvarsan. The beneficial results were, on the whole, he thinks, more marked in the cases treated by salvarsan than in the cases treated by neosalvarsan.

In one case (Case 10) the patient refused to remain in hospital after the first injection. The writer has, however, included this case in the series in order to give his complete experience of the method of treatment without in any way appearing to produce a too favorable result.

In some of the 21 cases treated by salvarsan or neosalvarsan which died from the disease, the immediate beneficial results of the treatment were very striking. In some of the cases in which the improvement at first was only slight, very marked

improvement ultimately occurred. The writer is disposed to think that in these cases the slow and gradual absorption of the remedy was probably the cause of the improvement which ultimately resulted. In all of the 21 cases treated by salvarsan or neosalvarsan, with the exception of Cases 2 and 10, arsenic, given by the mouth in the form of Fowler's solution, had previously been employed.

In none of the cases was there any reason to suspect previous syphilis. In those cases in which the Wassermann test was employed the result was always negative.

One advantage, and it is a great advantage, which salvarsan and neosalvarsan possess over the long-continued administration of arsenic by the mouth, in the treatment of pernicious anemia, is that, in the writer's experience, salvarsan and neosalvarsan do not produce peripheral neuritis, whereas large doses of arsenic given by the mouth in cases of pernicious anemia often do produce, in addition to other toxic symptoms, dryness of the throat, irritation of the conjunctivæ, pigmentation of the skin, keratitis, diarrhea, vomiting, etc., and very severe and intractable peripheral neuritis.

Since the writer advised the administration of salvarsan in the treatment of pernicious anemia he has received a number of communications from different physicians who have employed the remedy. In some cases striking beneficial results have been obtained, in others there has been no improvement. In some of the cases in which the remedy has been employed by other physicians and reported a failure, it was tried as a last resource after all other means had failed, some of the patients being in a moribund condition. One cannot, of course, draw true conclusions as to the value of the treatment from the results in such cases. In order to judge fairly and accurately of its value, a series of consecutive and unselected cases, slight as well as severe, in which no other treatment has been employed, should be taken, and the results compared with a series of similar cases treated by other methods. It is, however, a slow and difficult process to secure a sufficient number of "virgin" cases of pernicious anemia for this purpose.

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## THE TREATMENT OF CONGENITAL SYPHILIS.

In the *Quarterly Journal of Medicine* for January, 1915, FINDLAY and ROBERTSON writing on this subject reach these conclusions:

1. Salvarsan is superior to mercury in alleviating many of the manifestations of congenital syphilis.

2. Salvarsan should be administered to infants and young children intravenously.

3. It is advisable to use concentrated solutions of the drug and the veins of the scalp as the seat of the operation in order to avoid the necessity of an anesthetic.

4. Antenatal treatment is more successful with salvarsan than with mercury.

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## THE INDICATIONS FOR TREATMENT IN SEVERE DIARRHEA IN INFANCY.

The *Archives of Pediatrics* for May, 1915, contains an abstract of an article on this subject which is timely. Speaking before the American Pediatric Society HOWLAND and MARRIOTT considered a type of diarrhea which all recognized as particularly serious in infants. It was especially likely to occur in those infants who, as a result of diarrhea, were more or less malnourished. After perhaps a few days of mild diarrhea the stools became large, watery, and frequent. The infants were at first restless and sleepless; later it was frequent for stupor to develop, and oftentimes coma. The urine was very scanty and extremely acid, frequently containing albumin and casts, and sometimes sugar. Respiratory symptoms were very often present, especially toward the close of the disease. These might consist in a slightly increased ventilation of the lungs, or the disturbance might be so great as to amount to severe dyspnea. There is, however, no cyanosis. Post mortem, the lesions were insignificant. This type of diarrhea had

been called "Toxicose" by Czerny, and "alimentäre Intoxikation" by Finkelstein.

During the summer of 1914 many determinations had been made with reference to the alimentary air. In infants who had severe diarrhea, especially if dyspnea was present, the carbon dioxide tension was found to be very much lower than in health, and the more severe the dyspnea the lower the carbon dioxide tension. It was found also that as improvement took place the tension rose. As low carbon dioxide tension is one of the evidences of an acidosis, other evidence of this had to be sought. The blood serum had been examined by the phenolphthalein test of Sellards, and it had been found that in infants with severe diarrhea a change could be noticed varying from slight diminution in the color to complete absence of color. The hydrogen-ion concentration of the serum had also been investigated and had been found to be increased. The urine of these infants had been found very scanty and strongly acid. These infants had a very marked tolerance for alkalies, whether given by the mouth, intravenously, or subcutaneously; three, four or even five times as much alkali had been required to cause an alkaline urine as in health. There was also evidence afforded by the influence of the alkali when given intravenously and subcutaneously. When the alkali had been taken in sufficient amount it brought about a normal hydrogen-ion concentration in the blood, caused the Sellards test to give a deep purple with phenolphthalein, stopped dyspnea, and caused a return of the carbon dioxide tension of the alveolar air to normal, or even abnormally high limits. An examination of the urine for acetone bodies had usually been without results.

In view of these findings it seemed perfectly fair to say that these patients suffered from acidosis and from a very severe acidosis. The acidosis was probably a relative one, caused by the loss of alkali from the intestines. It seemed therefore bad practice to give cathartics which would irritate an intestine already too irritated and cause a loss of material from the bowel which it was vitally necessary for the infant to retain. Unless an infant was distended, cathartics were contraindicated; opium was to be given in amount only sufficient to diminish the excessive diarrhea.

It was also necessary to give soda by the mouth, by rectum, intravenously, or subcutaneously. The intravenous was the method of choice, if a vein was accessible. It should be given in large enough doses to cause a cessation of the dyspnea and alkaline urine. This method of treatment improved the likelihood of recovery, but did not mean that recovery would inevitably ensue. The severe acidosis might be combated and yet death might take place. Howland said that this condition should not be termed "food intoxication;" it was not due to the presence of abnormal substances, but to the absence of substances that were very normal and necessary to life.

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## THE SPECIFIC TREATMENT OF HAY-FEVER.

The *British Medical Journal* of May 29, 1915, tells us that the vaccination method of treating hay-fever, initiated by Noon and continued after his death by Freeman, is of so recent introduction that we cannot expect independent workers to have much experience of it as yet. It is interesting, therefore, to find Sormani, although he has tried it in only a very small number of cases, confirming their statements and encouraging the hopes which their work has aroused. The method, as is well known, consists in injecting subcutaneously gradually increasing quantities of an extract of the pollen of *Phleum pratense;* the initial and subsequent doses are regulated according to the resistance of the patient, which is gauged by the reaction produced by dropping appropriate dilutions of the extract on the conjunctiva. The injections are carried out during the winter months to prepare the patient to resist the action of the pollen in the summer, and the results so far have been very encouraging.

Sormani describes three cases, all of them subject to very violent attacks of the disease, recurring each summer for a period

of several years. After a course of injections, one of them passed through a season without any attack whatever, and two with only slight disturbances at long intervals. Of the latter one was so convinced of his immunity that he gathered some pollen and snuffed it in order to test his resistance! This gave him a mild attack which lasted a couple of days—an excellent result of so severe a test. Sormani, however, has modified the technique considerably. He uses only freshly prepared extract, finding (unlike Freeman) that it loses greatly in strength on keeping; he prepares it differently, and he does not every time control the dosage by conjunctival instillation. The latter he considers unnecessary. The injections being given in winter—that is, prophylactically—and not during the season of exposure to the irritant, it is in his opinion sufficient to proceed on the general principles of graduated increase used in other prophylactic inoculations without the elaborate controls desirable in therapeutic inoculation; he gauges his dose by the reaction produced by the previous injections. His extract is prepared as follows: 50 mg. of rye pollen and 50 mg. of the pollen of *Phleum pratense* are ground up together with 1 gramme of sterile sand, and extracted with 4.5 Cc. of 10-per-cent NaCl solution for two hours. The fluid is poured off and the residue again extracted with 40.5 Cc. distilled water for one hour. The two extracts are mixed together, and 5 Cc. 2-per-cent carbolic added. This gives him his extract, which he reckons to contain 20,000 units in the notation of Noon.

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### THE TOBACCO HEART.

Brooks in the *New York Medical Journal* of April 24, 1915, concludes that tobacco produces symptoms referable to the heart, of a very definite and characteristic type. These are first manifested by an increase in rate, with a rise of blood-pressure; later by a slowing with a fall in pressure. These symptoms are apparently due to vagus effects and quickly disappear when the drug action passes. These symptoms all diminish in degree with habituation to the drug, though they may be aroused in almost any instance by increasing the dose and in many cases by changing the form of administration.

Prolonged excessive administration of tobacco induces arrhythmia and intermission. These symptoms are more or less persistently accompanied by a sense of weight or of pain of a dull, obstinate character in the heart region. Pain may be entirely independent of alterations in rhythm, though most likely to occur with a slowing of the usual rate. So far as can be surmised from experimental evidence and from clinical observation, these symptoms are not due to vagus disturbance, but to claudication of the coronary vessels. They are more likely to appear in chronic smokers than in beginners, and in long-standing rather than in recent tobacco habituation.

Tobacco angina pectoris is in all symptomatic respects similar to the true angina pectoris caused by coronary disease. It occurs with considerable frequency in chronic tobacco poisoning. It is unusual if not unknown in acute tobacco poisoning, and long habituation to the drug predisposes to this symptom. It is relieved by the usual vasodilators and also by morphine. It is commonly succeeded or preceded by a sense of pain in the precordium. The angina of tobacco poisoning is entirely relieved and commonly does not recur if tobacco is given up. In many instances one attack appears to sensitize to others. This sensitization seems to disappear very slowly. So far as can be determined, this symptom is due to a coronary claudication, and it is entirely or almost free from vagus effect.

There is no clinical nor experimental evidence that disease of the heart muscle is caused by tobacco, save for possible changes in the papillary muscles, probably explainable on a mechanical basis. The fact that all symptoms disappear when tobacco is discontinued seems to confirm this statement.

There is neither clinical nor anatomical evidence sufficient to indicate that true coronary sclerosis may be caused by tobacco, though it is highly probable that when this condition exists the symptoms are accentuated by it.

Tobacco angina is promptly relieved by discontinuation of tobacco; no such result can be obtained in true angina pectoris.

It is probably unwise to permit the use of tobacco in circulatory diseases when symptoms of cardiac embarrassment occur.

The persistent use of tobacco immunizes against vagus effects and sensitizes to coronary claudication.

Death may result from acute tobacco poisoning, in which case its mechanism is chiefly from vagus effects.

Death may result from tobacco angina, but it is probably very rare and most likely occurs only when anatomically diseased coronary vessels preëxist.

The essential treatment of tobacco poisoning is suspension of the use of the weed.

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## POTASSIUM PERMANGANATE: ITS COOLING EFFECT UPON THE SKIN.

In the *Boston Medical and Surgical Journal* of May 27, 1915, BRYANT, after a tropical experience, writes as follows on this subject:

If one wishes to experience in the hottest and wettest weather available a sensation as of a drop in temperature of say ten degrees with corresponding relief from the effects of humidity, it is necessary only to take a bath in or rub down with a weak solution of potassium permanganate. This may be followed by a shower or wash with plain water. The result will justify the effort of the procedure, and it is especially valuable as a means of promoting sleep at night.

This proposition very likely is known to many, but it is at least in this case the accidental discovery of the author and seems not to be known to any of his medical friends unless through personal conversation on the subject. For this reason, and with a marked increase in comfort so easily obtainable, it has seemed worth while to present this simple expedient in the hope that a few persons, and particularly invalids, may thereby receive benefit from its application.

Arriving one day on an errand of medical necessity at Batavia, some years ago in the midst of the Javanese summer, the writer found the climate both hot and wet, as was to be expected. One of the provisions for the entertainment of the tourist was, and doubtless still is, endemic cholera. This necessitated certain precautions. For instance, sulphonaphthol was used rather freely upon floors, and fruit for the hotel table was always exposed to live steam. Also, the bath water always contained enough permanganate to give it a good reddish-brown tint. According to the custom of the country, a splash bath is taken: one stands upon a wooden grating, and with the aid of a dipper throws over one's shoulders from a large tub at the side, which is refilled daily. Permanganate is used in order to dampen the ardor of what germs may be present in this tub of water. All this is perfectly proper. The surprising feature of the use of this solution was its immediate cooling effect, lasting for some hours. At first it was dubious if the permanganate was really the active agent in producing the sensation of the drop in temperature, but repeated use of the solution for bathing purposes left no room for doubt, and recurring summer heat, both in this country and in Europe, has only provided opportunity for confirming the experiment and proving that permanganate has a very active value as a cooling agent.

The fact has been sufficient, but doubtless the mode of action is at least in part by the removal of all grease from the skin, with better opportunity for loss of heat from the body. To try the experiment is to be convinced. It is only necessary to buy a few crystals of permanganate and make a saturated solution. Pour enough of this solution into a wash bowl to give the water a pale pink or reddish tint, rub down with a wash cloth, and follow with a shower or bath as desired. A solution strong enough to be effective can be used without discoloring the receptacle, or if necessary any stain is easily removed by the use of a little oxalic acid solution. Bryant asserts that potassium permanganate in weak solution is a valuable wash for ex-

ternal application in hot, humid weather. Its use in conjunction with the customary bath greatly promotes comfort by day and sleep by night at a time when both comfort and sleep are at a premium.

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## A PRACTICAL METHOD OF EMBALMING ON SHIPBOARD.

The *Military Surgeon* for February, 1915, contains an article by FRANCIS which he begins by pointing out that the subject of embalming is one which affects the public health in the transportation of bodies dead from communicable diseases; the custom of burial at sea had its origin in the inability to preserve the body until the end of the voyage; people traveling or residing in foreign countries, or detailed there by their government, should, in case of death, be so preserved that there would be no hesitancy in returning the corpses. On the death of men of great note—as heads of governments—it is often necessary to preserve the body for weeks or months. There should be no difficulty whatever in doing so. The instances which the writer has cited call for perfect embalming, the preservation of all parts of the body and their complete sterilization. The proper fluid in right amounts must be properly injected in definite locations.

The character of the fluid is of much less importance than the manner of its injection. For instance, if a body be injected through but one artery, say the right brachial toward the heart, what assurance is there that the right arm below the site of injection will receive any of the fluid, or that the head will get a sufficient amount to preserve it, or that the opposite arm or the legs will get their proper proportion of fluid? The chances are that the amount of fluid will vary in different parts, and some part perhaps will get none at all.

When the fluid is introduced into the circulation at but one place, the operator takes great chances against a uniform distribution of fluid throughout all parts of the body, consequently the parts which receive the least fluid will be the first to show signs of decay.

In order to get a uniform distribution of fluid, it is usually necessary to make six injections—*i.e.*, into each brachial artery toward the extremities, into each femoral artery toward the extremities, into one common carotid artery toward the head, and into the same carotid toward the heart. In each instance, when injecting the brachial artery, or the femoral or the carotid artery upward, fluid is immediately seen returning through the veins. In this way the operator has the assurance that the fluid actually bathes all the tissues of the extremities or head, and he can rest assured that the parts will be preserved.

To so embalm a body that it will withstand a tropical sun, or a long sea voyage, or that it may be kept in state for weeks or months, or that it may be harmless on account of communicable disease, the embalmer should inject the arterial system in the six locations indicated with a total amount of fluid equal to 15 per cent of the body weight.

The maximum amount of fluid which in practical embalming it would be desirable to inject into the arteries would depend upon circumstances. It is an easy matter to overinject the head or extremities so that the face and hands are puffy and unnatural. In many instances the effects of overinjection are not objectionable, particularly if the casket is not to be opened, or if a long time is to be consumed in transportation before the body is viewed at its destination.

The technique of injection is a matter of the greatest importance. As we are concerned with preserving all parts of the body in an equally good condition, we must satisfy ourselves that the fluid reaches every part of the body in an amount sufficient to preserve it. There is no objection to a multiplicity of injections. A single injection into but one artery does not produce the widest possible distribution of the fluid to all remote parts of the head and extremities. The writer does not deny that in temperate climates bodies are injected constantly through a single incision with a small amount of fluid and the bodies are preserved for two or three days until burial.

If, however, a body is to withstand the high temperature of the tropics, its indefinite preservation will depend upon its complete sterilization.

The formula of an embalming fluid devised at the Hygienic Laboratory of the Public Health Service, and which has been found stable in composition after standing two years and eight months, and which has proven effective in preserving human subjects exposed for two months to a temperature of 98° Fahrenheit after being embalmed, is as follows:

Formalin (40-per-cent formaldehyde), 12.5 Cc.;
Borax (sodium borate $Na_2B_4O_7$), 5.0 grammes;
Water, sufficient to make 100.0 Cc.

*Note.*—Should the strength of the formula be below 40 per cent, its amount must be proportionately increased, using, for example, 15 Cc. of formalin of only 33 1/3-per-cent strength.

The above formula is based on the idea that formaldehyde is the best preservative and disinfectant which can be used in an embalming fluid. It constituted the essential ingredient in nearly all commercial fluids analyzed at the Hygienic Laboratory. One very serious objection to formaldehyde is that it bleaches muscular tissue to an ashy gray. In the course of the writer's investigation this objection was found to be overcome by adding an alkali to the formaldehyde solution, thus changing its reaction from acid to alkaline. In the selection of the proper alkali it was found, however, that the common alkalies caused a deterioration of the formaldehyde after several weeks' standing. On account of the instability of formaldehyde in the presence of sodium hydrate, potassium hydrate, ammonium hydrate, sodium sulphite, and sodium carbonate, they all had to be abandoned; whereas borax was found to furnish the desired alkalinity without causing more than the very slightest deterioration of the formaldehyde after having been made up almost three years. Borax has the additional advantage of being in itself a preservative.

The injection apparatus consists of a three-gallon bottle, through the rubber stopper of which pass two glass tubes; one tube extends to the bottom of the bottle and affords an outlet to the fluid which is carried by a rubber tube to the glass cannula; the other tube is connected by rubber tubing to a pump—a bicycle foot-pump is very effective.

The composition of the embalming fluid is given above. Inject into the arterial system an amount of fluid equal to 15 per cent of the body weight, a pound being sixteen ounces, or 453.59 Cc.

Inject each femoral artery toward toes with 2 per cent body weight.
Inject each brachial artery toward fingers with 1 per cent body weight.
Inject one common carotid artery toward head with 2 per cent body weight.
Inject same common carotid artery toward heart with 7 per cent body weight.
Total amount of fluid, 15 per cent.

It is not necessary to withdraw blood from the veins, although there is no objection to doing so. It is not necessary to inject fluid into the thoracic and abdominal cavities. Autopsied bodies are to be treated in the same way, with the addition of a liberal amount of cotton and emblaming fluid to the cavities of the abdomen, chest, and skull. Plug the anus, mouth, and nostrils with cotton soaked in the embalming fluid. Wash the entire body, including the face, ears, and hair, with the fluid. If desirable to keep the body for a long time, drying can be prevented by rubbing vaselin liberally over the entire body, followed by bandaging same.

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## PITUITARY EXTRACT IN UTERINE BLEEDING.

JACOBY in the *Medical Record* of February 6, 1915, well says that the non-operative treatment of this condition has heretofore been confined chiefly to the administration of drugs such as ergot, stypticin, chloride of calcium, digitalis, hydrastis, persulphate of iron, and the local application of carbolic acid, zinc sulphate, perchloride of iron, combined with hot douches. These measures were all directed to the diminution of local congestion, or destruction of an endometrium of increased vascularity, or an attempt to increase the

contractility of the uterus and the coagulability of the blood, but in no way influenced the causative agent, namely, the increased ovarian secretion.

The writer knows from his experience with pituitary extract in labor cases that the hypodermic injection of this extract has a selective action upon the uterine muscle, causing it to contract very powerfully. He is also led to believe that the secretion of the pituitary gland acts in direct antithesis to the ovarian secretion. From this it would be reasonable to expect that the administration of the extract of the pituitary gland, in such cases in which there is an increased ovarian secretion, or diminished uterine contractility, causing an increased flow of blood from the uterus, would have the effect of causing a marked diminution in the amount of blood lost. This is splendidly borne out by the results obtained in actual practice.

The method of using pituitary extract is extremely simple. It is furnished ready for hypodermic use in 1-Cc. sealed glass ampoules, by various chemical concerns under a variety of trade names. The dose used is usually 1 Cc. given hypodermically into the subcutaneous tissues of the arm over the deltoid muscle. This dose is equivalent to 3 grains of the fresh gland. The dose is repeated every other day, using alternate arms, until ten doses are given. This is usually found to be sufficient. Further doses may be given if necessary. In the majority of cases effects are obtained with fewer doses.

In all the cases in which the injections have been used there were no infections, and very few symptoms subsequent to the injection. Several patients complained of cramps in the lower abdomen, and occasionally nausea. One patient complained of vomiting and diarrhea, which disappeared upon diminution of the dose. There was no instance of any severe constitutional disturbance.

Among the conditions in which the injections were used were: anemia causing menorrhagia in a virgin, threatened abortion, hypertrophy of the endometrium, fibrosis uteri, fibroids, subinvolution, retroversion, disease of the adnexa, parametritis, and certain cases following vaginal operation in which the uterus had been fixed to the anterior vaginal wall.

The results obtained have been very encouraging, and in the writer's series uniformly successful in alleviating the condition for which they were given. In every case of menorrhagia the duration and the amount of menstrual flow have been diminished. In cases of metrorrhagia the duration and the amount of bleeding have been diminished, and the intervals between bleedings have been lengthened to more nearly the normal. In cases of continued bleeding following operation, the bleeding ceased, and the normal menstrual cycle was restored. In the one case in which it was used for threatened abortion, the bleeding stopped. However, more extensive experience will be necessary before it is advisable to use injections in all cases of threatened abortion.

From these results it will be seen that pituitary extract administered hypodermically is a very valuable remedy for this class of cases. Further experience will be necessary to determine all the conditions in which the pituitary extract acts successfully; nevertheless, it is certainly well worth trying before giving up medical means, and resorting to operative interference.

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## THE VALUE OF EMULSIONS OF LIQUID PARAFFIN AND CASTOR OIL IN CERTAIN TYPES OF CHRONIC DYSPEPSIA IN CHILDHOOD.

M'NEIL in the *Edinburgh Medical Journal* for February, 1915, contributes a paper dealing with the treatment of various forms of chronic dyspepsia in children over one year by emulsions of liquid paraffin or of castor oil. It is based on the notes of about 120 cases which the writer has observed in the out-patient department of the Children's Hospital during the last three years. His conclusions are:

1. Emulsion of liquid paraffin or of castor oil (in small, non-purgative doses) are of great value in the treatment of vari-

ous and apparently distinct types of chronic dyspepsia in childhood.

2. The types dealt with are: (*a*) Malnutrition, frequently associated with chronic diarrhea, and only seldom with constipation. (*b*) Enuresis, with dyspeptic symptoms. (*c*) Recurrent vomiting (cyclical or bilious vomiting). (*d*) Recurrent attacks of fainting, or sudden pallor. (*e*) Urticaria or eczema, with dyspeptic symptoms.

3. In a great majority of these diverse types of illness there is an abnormal condition of the stools; this may often be a true diarrhea, but not seldom also merely a too soft consistence of the stool with or without the presence of mucus. In the series constipation was present in only a small majority.

4. A large number of these cases have followed the common infectious fevers of childhood, especially measles and whooping-cough. These post-infection cases of dyspepsia seem to the writer particularly amenable to this form of treatment.

5. In a series of 13 completed cases of enuresis, eight were cured and three greatly benefited by this treatment.

6. The action of liquid paraffin and castor oil used as described is similar. It is entirely local, and confined to the mucous membranes of the alimentary tract. The action is most probably a sedative one, exerted on the congested and unhealthy mucous lining of the small and large intestines.

Children suffering from dyspepsia in one or other of its many clinical types form an easy majority of the cases attending an out-patient department. They show many symptoms of disturbed health. Some of these symptoms stand out large in the foreground of the clinical picture; others are less conspicuous in the background. But these leading symptoms frequently exchange their positions, some being prominent in one child, but subordinate in another. Among those that are seldom absent are slowness of growth and thinness; a morbid appetite—either a refusal of food (anorexia) or greediness (bulimia); disturbed sleep—in many degrees; muscular asthenia—shown in tiredness, refusal to play; vasomotor depression—shown in the coldness of the hands and feet and in unusual susceptibility to cold, and no doubt also in the cases of fainting attacks described in a special group; instability of the nervous system—shown in timidity, shyness, and irritability. There are also frequent reports of cough, with or without enlarged tonsils and adenoids; also of the presence of worms, which is often difficult to ascribe as a cause, or merely an effect and complication of the general dyspepsia. Another symptom often present, though seldom mentioned in text-books, is thirst. In 74 cases of this series its presence or absence was investigated; it was present in 55 (74 per cent), and absent in 19 (26 per cent).

It will be convenient to introduce here evidence in support of conclusion 3 that in a majority of cases of chronic dyspepsia of all kinds in childhood there is what may be vaguely but sufficiently described as "looseness of the bowels." In the present series cases of constipation were a small minority. The results in 109 cases were as follows: Bowels loose, 61; bowels regular, 27; constipated, 21.

The group "regular" included cases in which the motion was abnormally loose in consistence, or contained mucus, or was unusually foul in odor.

Conclusion 4 states that chronic dyspepsia is a frequent sequel of the infectious fevers. In the present series this fact of history was ascertained in one-third of the cases (40 out of 120). In all but two of these it was whooping-cough or measles. This frequency is almost certainly an under-statement. The absence of record in the hurried notes of out-patient cases may often indicate, not the absence of the fact, but simply the omission to look for it. But it is striking how often the mother will volunteer such a statement as "He had the measles a year ago, and he has never been the same since."

Castor oil in small doses is a remedy well known and long established in the treatment of chronic diarrhea in children. Various

petroleum emulsions (liquid paraffin) are and have long been advertised by firms of chemists as valuable for wasting conditions, bronchitis, etc.; they are nearly always combined with hypophosphites. But the writer does not know that liquid paraffin is recommended for specific conditions of dyspepsia in the important text-books of children's diseases. We all know that of late years it has been and is still largely used in the treatment of constipation in adults. The object of this paper is to show that the use of castor oil as described may be extended to other conditions; and that the use of liquid paraffin may be made more definite and is suitable in the same groups of conditions as castor oil—in short, it is to give specific indications for the use of these inert oily substances (inert as regards laxative action) in certain chronic disorders of childhood associated with dyspepsia.

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## CERTAIN CONDITIONS WHICH INFLUENCE THE ACTION OF UROTROPIN ON THE URINE.

WALKER in the *Clinical Journal* of January 27, 1915, says it is necessary as a preliminary to the consideration of the effect of alkalies and acids upon the action of urinary antiseptics to discuss shortly the drugs which affect the reaction of the urine and the influence upon bacterial growth of variations in the reaction of the urine.

The normal acidity of the urine is due to the presence of acid sodium phosphate, and the acidity varies in different individuals and at different periods and times of the day under influences which are well recognized.

There is seldom any difficulty in reducing the acidity of the urine and giving it a moderately alkaline reaction. The drugs which are commonly used for this purpose are potassium citrate and acetate and sodium bicarbonate. The latter drug, in the writer's experience, is the most powerful.

It is a much more difficult matter to turn an alkaline urine acid.

There are two types of alkaline urine met with in practice. One is a faintly alkaline urine which deposits phosphates sometimes in large amount, but which, apart from the change in reaction, is normal in other respects; the second is a powerful alkaline urine with ammoniacal decomposition in which there is an abundant growth of bacteria together with other abnormal constituents, such as mucus, pus, and blood.

In practice one finds that there are only two drugs which will render a strongly alkaline urine acid. These are acid sodium phosphate and ammonium benzoate. The former may be given in doses of 30 grains thrice daily, and, if necessary, increased to 2 or 4 drachms thrice daily. In the larger doses it may cause diarrhea. Ammonium benzoate is given in doses of 15 or 20 grains thrice daily.

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## THE THEORY OF SALICYLATE THERAPY IN RHEUMATIC INFECTION.

In the course of an article on this topic in the *Lancet* of January 23, 1915, MILLER states that salicylate has the power of diminishing the activity of the rheumatic infecting agent, and that this may be taken as the working basis of salicylate therapy in rheumatism, the drug being administered with the sole view of controlling the bacterial activity. Of this the temperature chart is as accurate an index in rheumatic as in other infections (*e.g.*, tuberculosis). Care must be taken to discriminate between symptoms directly due to active rheumatic inflammatory processes and those dependent upon toxic parenchymatous changes which may remain long after all bacterial activity is at an end.

*Note on Dosage.*—The temperature chart is the guide to the dose of salicylate to be employed. Used solely with a view to controlling bacterial activity, the effective range of dosage for child or adult is usually from 60 to 120 grains per diem. Less than 1 drachm daily is rarely sufficient; more than 2 drachms need seldom be given. Much larger doses than these have been shown to be safe if properly administered, and if necessary to gain control may be

used, but for the most part "massive" doses have been administered in cases of chorea in which there was no evidence of bacterial activity remaining.

Any dose greater than 100 grains daily should be given, as Dr. D. B. Lee teaches, subdivided into 10 doses in the twenty-four hours. Large frequent doses should never be given, particularly in children. Constipation should be avoided with an equal dose of sodium bicarbonate; the writer has not found the double quantity of soda necessary in doses of this grade. Vomiting in cases of severe cardiac dilatation may be difficult or impossible to prevent, but in other cases may be avoided for the most part. The more serious symptoms of salicylate poisoning (acid intoxication) should nowadays never be allowed to arise.

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## THE USEFULNESS OF EMETINE IN CHOLERA.

ROGERS in the *Indian Medical Gazette* for January, 1915, points out that the remarkable effects of emetine in amebic dysentery and its occasional value in sprue-like forms of diarrhea, together with its favorable action in hemoptysis and hemorrhages from the gastrointestinal tract, led the writer to consider if it might not conceivably be of value in checking the rapid loss of fluid through the mucous membrane of the small bowel in cholera.

With a view to testing this hypothesis the writer commenced in March, 1914, to give hypodermic injections of emetine hydrochloride in half-grain doses morning and evening, in addition to the routine treatment by hypertonic salines intravenously and permanganates by the mouth. The mortality of cholera in Calcutta varies in different seasons of the year and even from one month to another, and to a still greater extent in different periods of an epidemic, being much less in the later than in the earlier part of an outbreak. The necessary precaution was therefore taken of using the new additional treatment as far as possible in alternate cases, so as to have an equal number of controls during the period of the trial of the drug. The time chosen was at the height of the annual maximum of the disease in Lower Bengal, namely, March and April, when the cases are severe, although somewhat milder in April than in March.

After thirty-two cases had actually received emetine injections the treatment was stopped as no obvious benefit had resulted from it.

Some two months after the conclusion of the writer's trial of emetine a paper appeared in the July issue of the *Indian Medical Gazette* by Dr. Renault, in which he claimed to have obtained very favorable results from the use of injections of the drug in doses varying between one-sixth and 0.6 grain of emetine hydrochloride, but without the use of the saline treatment. Unfortunately he omitted to take the precaution of having control cases, while he began the treatment when the epidemic had reached its height—that is, just when a decline in the virulence would naturally take place. Still more unfortunately the cases treated with emetine do not appear to have been an unselected series, as the author states that some of his assistants exhibited the drug in desperate cases, contrary to his clearly expressed directions on the subject; thus implying that the severest cases were excluded from the treatment by him. This entirely vitiates his results, as it is among these alone that any high mortality is to be expected if the writer's system of treatment is carried out. It therefore appears to be advisable to place the writer's experience on record, especially as full notes on the system used in his wards for the last five years are available, so that the cases treated with emetine can be accurately compared with an equal number of control cases not receiving the drug during the same period of time.

For convenience of comparison the principal points which influence the prognosis in cholera cases have been analyzed, and the results are shown in the table below. In the first place the mortality of the whole series of 64 cases was 8, or only 12.5 per cent, a very low figure, especially when it

is remembered that desperate cases are included, and about one-half of that obtained by Dr. Renault. If control cases had not been kept the results would, indeed, have appeared to be very favorable to the drug, but as a matter of fact the mortality was equally divided among the cases treated with and without emetine, thus showing no improvement due to the addition of that drug.

In such a comparatively small series, however, the precise mortality might well be affected by an accidental occurrence of a larger proportion of serious cases in one or other of the series. The factors which most influence the mortality, as shown by a close study of upward of one thousand cases in the writer's wards, are (1) the number of cases admitted with no pulse at the wrist; (2) the number admitted with a specific gravity of the blood of from 1,066 and upwards; (3) the number of cases requiring more than one intravenous saline injection; and (4) the number of patients over the age of fifty years, among whom the mortality is twice as high as among those of the most favorable decade, between twenty-one and thirty.

THE PRINCIPAL FACTORS INFLUENCING THE MORTALITY OF CHOLERA.

| | Emetine cases. | No emetine. |
|---|---|---|
| Cases with no pulse on admission..... | 10 | 15 |
| Cases with sp. gr. over 1,065..... | 8 | 3 |
| Cases requiring two or more intravenous saline injections..... | 10 | 10 |
| Patients over the age of 50 years..... | 1 | 1 |
| Deaths among 32 cases..... | 4 | 4 |

It will be seen from the table that as regards mortality, the number of patients over fifty years of age, and the number of cases requiring more than one intravenous saline, the figures are identical in the two series of cases. Of the other two factors five more cases with no pulse at the wrist on admission occurred in the series treated without emetine, and five more with very high specific gravity of the blood in those receiving emetine, which thus cancel each other. This leaves the two series remarkably similar as regards the prognosis on admission, thus entirely confirming the opinion the writer had formed from watching the progress of the patients.

The writer is therefore obliged to conclude that the injections of emetine have no influence for good or evil on the course of the disease when the hypertonic saline treatment is also employed.

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## TYPHOID AND PARATYPHOID INFECTION IN RELATION TO ANTITYPHOID INOCULATION.

In the *Lancet* of February 13, 1915, DREYER, WALKER and GIBSON conclude a useful article on this subject with these words:

1. It is of the utmost importance that our troops should be protected against paratyphoid infection as well as against the B. typhosus. This can readily be done by the use of a mixed vaccine containing equal quantities of B. typhosus, B. paratyphosus (B), and B. paratyphosus (A). Men already inoculated against B. typhosus should be also inoculated against paratyphoid infection, since the antityphoid inoculation offers no appreciable protection against paratyphoid bacilli. The epidemics of typhoid fever reported to be occurring among the belligerents (who are all known to practice antityphoid inoculation) are probably to an important extent epidemics of paratyphoid.

2. Unless all cases of "enteric" fever are properly differentiated into typhoid and paratyphoid infection the statistics regarding the value of antityphoid inoculation among our forces in the present war will be most seriously vitiated. It is probable that the absence of accurate bacteriological diagnosis in the past explains the fact that the statistical results arrived at in our army have not always been so convincing as would otherwise have been the case.

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## SCOPOLAMINE AMNESIA IN LABOR.

The *Cleveland Medical Journal* for January, 1915, contains an article on this topic by J. T. SMITH.

In this total series of 35 cases, the writer followed the method of Gauss, except in regard to dosage. Starting, in the earlier cases, with 1/150 grain of scopolamine and

1/6 grain of morphine as an initial injection, he was never able to obtain anything approximating a "twilight sleep." A slightly "dopy" condition, with added restlessness during pain, was the only visible result. He was forced, therefore, to increase the dose. With scopolamine gr. 1/100 and morphine gr. 1/6 or 1/8 he did begin to get some results, so that dose was later used for the initial injections. He tried in every way to keep the patients absolutely quiet. His scopolamine solutions he prepared freshly for each case, using the dry alkaloid as furnished by Merck. No cases presenting pelvic contractions, abdominal presentations, or other exceptional conditions were included in the series. The three things that most markedly impressed those who saw these cases in labor were: the great thirst of which practically all complained; the marked restlessness noted in about 60 per cent, and amounting to actual delirium in two cases—one an epileptic; and the lengthening of the second stage. After labor, a few of the children were oligoapneic for some hours. There seemed to be a slightly greater tendency to postpartum bleeding than is normal; apparently it is unsafe to use pituitary extract long before delivery in these cases. A uterine atony frequently follows the wearing off of the effects of the extract, and if this condition arises about the time of delivery, severe hemorrhages may follow. In the writer's cases there seemed no doubt but that the women failed to assist themselves during the second stage as much as they normally could have done. This resulted in forceps operations more frequently than is normal at Johns Hopkins Hospital.

The writer's largest initial injection consisted of morphine gr. 1/6, plus scopolamine gr. 1/100. The smallest first dose was morphine gr. 1/12, plus scopolamine gr. 1/150. Some cases had but one injection in all. The maximum number of injections in his series was four. In five cases only was morphine repeated. In one of these morphine was given three times. The greatest total of morphine given any one patient was 1/3 grain. The greatest total of scopolamine was 1/25 grain, given over a period of nine hours.

The use of scopolamine lengthened the labors. It is very difficult, when the drug is being exhibited, to tell just when the second stage begins; and the exact onset of labor is generally vague. In so far as the writer's notes are reliable, in these thirty-five cases, labor was prolonged beyond the average in primiparæ by two hours, and in multiparæ by one-half hour.

Was the method successful in abolishing the memory of labor in these 35 patients? Seven (20 per cent) showed perfect amnesia. These were cases that received relatively large doses, and in this group occurred five complications, such as stillbirths, serious asphyxia, and a need for forceps. No cases were free from pain during uterine contractions. Fourteen or fifteen cases (40 per cent) showed no loss of memory at all. The remaining patients, when questioned some days after delivery, had "islands" of memory scattered through the period of labor.

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## SECONDARY ULCERS OF THE STOMACH AND JEJUNUM—FORMATION OF CALCULI AROUND UNABSORBABLE MATERIAL USED IN SUTURING THE INTESTINAL MUCOSA.

SURESI (*Annals of Surgery*, March, 1915) considers that the use of the nonabsorbable thread is undoubtedly one of the causes of a peptic ulcer forming about the new opening made by gastroenterostomy. In an experimental research he finds that unabsorbable material, silk or linen, is not eliminated after a period of ten months in animals, the peristalsis of which is very strong and which eat very rough food, such as bones and large pieces of meat.

The presence of the silk or linen thread is liable to cause ulceration of the mucosa of the stomach and the jejunum.

Catgut No. 1, either chromic, iodized, or even plain, should always be used for the through-and-through suture.

The process of sloughing of the mucosa begins twenty-four hours after operation,

and is generally completed from five to twenty days after. The suture will not be needed more than three days.

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### THE INJECTION TREATMENT OF HEMORRHOIDS.

EDWARDS (*Practitioner*, March, 1915) states that after an experience of some 6000 operations for piles, he is strongly of opinion that what is known as Salmon's operation is the best in the majority of cases. Whitehead's method, which bid fair at one time to take its place, is rapidly falling into disfavor, for he has seen many ill results following this operation, even when carried out by skilled hands. The clamp and cautery operation in uncomplicated cases of internal hemorrhoids, when the piles are not more than three in number, is quite excellent. Convalescence is rapid, pain negligible, and hemorrhage no longer to be feared if only a small rubber flatus tube is inserted and left in for three or four days.

With regard to the injection treatment of hemorrhoids, the cases suitable are those of reducible internal hemorrhoids, which are uncomplicated by external tags or piles, fissure or fistula; those in which the patient cannot afford to lie up, which is usually the case with medical practitioners; and those in which an operation under anesthesia is either objected to by the patient or, on account of heart or lung trouble, is considered risky. The author's method of procedure is as follows:

After a warm boracic enema, the piles are extruded at stool. The patient is then placed on a couch in the knee-elbow position, and the piles mopped over with a little warm lysol or other antiseptic lotion. A hypodermic syringe is filled with the following solution:

℞ Acid. carbol., gr. xxiv;
Glycerini, 3j;
Aquam ad, 3ij.

At first he used a 10-per-cent solution—*i.e.*, half this strength—but he has found the stronger much more efficacious.

The needle, of good lumen, is then passed into the center of each prolapsed hemorrhoid in turn, from 3 to 6 drops being injected according to the size of the pile. This is usually quite painless. Swelling occurs at once, so the sooner the piles are returned the better. The patient is then allowed to go home, with a caution to return the piles at once should any prolapse occur, otherwise strangulation and sloughing might ensue. A second injection is sometimes necessary after the lapse of a month or two, but in many cases recurrence, if it takes place at all, is postponed for a year.

Mummery states that the real truth is that an operation for piles requires to be performed with considerable care and not a little skill, and, perhaps more important than all, requires very careful after-treatment; if the operation is performed under these conditions there is no surgical procedure which can show more uniformly excellent results. At the present time a properly performed operation for piles should not be followed by any pain requiring the use of morphine, and the patient should be cured of his trouble without its being possible to detect a month or so later, on close examination, that an operation has been performed.

James Eadie, commenting upon this paper, believes that in most of those who submit to a complete course of injections the percentage of cure is as high as by any method of operation, and recurrence is the exception. Many patients are so greatly benefited by a few injections that they cease attending with the cessation of their symptoms, although piles are still demonstrable by means of the proctoscope. It is not to be wondered at if in course of time these give the patient discomfort, but even in that case the injections appear to act for a time after their discontinuance, and a return of symptoms does not occur in anything like the percentage of patients one is prepared for. When in the course of years the symptoms do recur, the patient turns up for a few more injections, is made comfortable, and goes his way until, if ever, the piles again make their presence felt.

The mishaps he has observed are mainly two:

Pain, which results if the injection is made too near the mucocutaneous junction, or if the pile is allowed to prolapse and remain prolapsed after it is injected. He always cautions patients that their part in the treatment is to return the piles immediately they prolapse, during the twenty-four hours subsequent to injection; if they fail to do so, they will experience pain, which is no part of the treatment.

Sloughing of the mucous membrane over a small area, producing ulcer or fissure. This he imagines results from injecting too closely under the surface of the mucous membrane. He endeavors to inject at least a quarter of an inch deep, and as near where the veins leave the pile—*i.e.*, as high up the anal canal—as possible.

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## PRESERVATION OF THE ILIOHYPOGASTRIC NERVE IN OPERATION FOR CURE OF INGUINAL HERNIA.

Dowd (*Annals of Surgery*, February, 1915) notes that nearly 10 per cent of the surgical operations at the present time are done for the relief of hernia. A large proportion of relapses come in the form of direct hernias. The precautions against recurrences are adequate suture and preservation of nerve supply. Coley believes that the lowermost suture is one of the most important in the series. He inserts the suture in such a way as to include the reflected portion of the external oblique aponeurosis as well as the conjoined tendon and the transversalis fascia. He adds four or five stitches behind the cord. When the conjoined tendon and the fibers of the internal oblique and transversalis muscles are weak and attenuated it is advantageous to bring down a part of the rectus muscle and possibly to liberate a portion of the internal oblique from the transversalis fascia so as to make a reënforced suture line possible. As to the nerve supply a portion of the ilioinguinal nerves curve around the lower part of the back and abdomen. This portion of the iliohypogastric nerve which crosses the field of operation is exposed by splitting of the external oblique aponeurosis. When this fascia is turned back two nerves are found: the ilioinguinal, usually well down toward Poupart's ligament, is readily avoided, having in the main only a skin distribution; and the iliohypogastric, which runs directly across the operative field. It is generally large enough to show very distinctly. It runs into the aponeurosis of the external oblique muscle about an inch above the external abdominal ring. Those fibers which supply sensation to the skin are unimportant, but those which are distributed to the external oblique aponeurosis, the internal oblique and transversalis muscles, and to the transversalis fascia may be important at the time when healing is taking place.

The nerve may be best avoided by making the first opening in the aponeurosis by a knife cut, 1½ inches above and external to the ring, and then slipping curved scissors through this opening and pushing nerve and muscle well back before proceeding with the incision.

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## PROGRESS IN ORTHOPEDIC SURGERY.

Under this title Osgood, Soutter, Bucholz, Low, and Danforth (*Boston Medical and Surgical Journal*, March 25, 1915) quote Froelich, who has given much consideration to the tuberculous processes in infants and has pointed out certain special features which these infantile cases present: (1) A tendency to hypertrophy in both bone and joint affections with an early opening and a short sinus period. (2) The frequent involvement of the shaft of the bone in contradistinction to the usual epiphyseal lesion of later life. (3) The tendency to dislocation, especially in the diseases of the hip-joint. (4) The occurrence of an acute form most common in the knee and elbow, running a rapid course, healing soon after evacuation, and leaving little stiffness. (5) The common existence of multiple bone foci. (6) The predilection of the process for the testicle and the immunity of the prostate.

In making the diagnosis, syphilis and a staphylococcus infection must be carefully excluded. The mortality is about ten per cent. The process in the viscera and peritoneum runs the same grave course as in older children, but in other locations the tendency to spontaneous recovery is very noticeable. This should lead to much more conservative surgical treatment than in older children.

Vulpius considers his results from the Albee operation of bone graft into the spinous processes in tuberculosis of the spine to have been very satisfactory. He emphasizes the eminent pain-reducing effect of the operation and the increased activity of the children. He insists upon prolonged rest after the operation and applies a brace.

Jacobs advocates the Albee operation in cases in which conservative treatment has failed or the element of time is an important factor, believing that the method represents a great advance in the treatment of Pott's disease except in early childhood. He believes that a callus firm enough to stand the great longitudinal sliding strain in these bone grafts needs many months for its development. He thinks fixation in a jacket or brace should be maintained for six months or more.

Rosenow has failed in only three out of thirty-eight cases of "arthritis deformans" to isolate organisms from glands draining the affected joints. In fourteen cases he found streptococci, in nine a peculiar staphylococcus-like organism at first completely or partially anaerobic, in nine the bacillus Welchii, in three staphylococci, in one the bacillus mucosus, in one the gonococcus. The author states that "there is often great sensitiveness of the patient to injection of killed organisms (autogenous vaccines) isolated from these glands and marked improvement may follow the injection. These facts in conjunction with the affinity of the organism for joints and muscles of dogs and rabbits after intravenous injections would seem to leave little doubt that the bacteria found in the glands draining the joints in arthritis deformans are the actual cause of the disease." He attributes part of the joint changes to the shutting off of the blood supply of the joints by the plugging of the vessels from endothelial proliferation induced by the organism. This possibly is further suggested by the experiments of Axhausen, who produced the gross and microscopic changes peculiar to arthritis deformans by ligating the blood-vessels supplying the structures of certain joints in dogs, and by the later work of von Manteuffel, who, following the work of Rudnicki on the soft parts, produced artificial sclerosis of the vessels and changes in the articular ends of the bones by freezing and congestion. In these experiments of von Manteuffel there was finally complete disappearance of the cartilage and of the entire joint with connective tissue ankylosis of the two bones.

Hastings, realizing that cultures from the blood, joints, and possible foci cannot be made in all of a series of cases, and that no one of these would be considered as a determining factor in all cases, has chosen the complement fixation test as a means of determining the bacterial cause of the "chronic infective deforming arthritis." Hastings's observations cover some 75 cases. Forty per cent of these reacted only to the complement fixation test for streptococcus viridens; in others the gonococcus, Wassermann, and other fixation tests were positive. He considers it very rare that the manifestations of "arthritis deformans" are due to the gonococcus.

Thalhimer and Rothschild produced an arthritis in half the rabbits they injected with streptococcus mitis. In character this arthritis was similar to the process caused by the micrococcus rheumaticus. They think that it is evident that an arthritis can be produced experimentally by blood inoculations of various streptococci and micrococci of the less virulent (non-pyogenic) group, but that evidence is still lacking that any distinct variety or species of streptococci is the specific cause of arthritis, at least in rabbits.

Moore has studied the action of vaccines

and concentrated antistreptococcus serum in experimental streptococcal arthritis in rabbits, and while there are yet too few cases for any conclusions, the work is suggestive. Moore's experiments were stimulated by the fact that antistreptococcus serum has not been altogether satisfactory, and he desired to find out whether in the presence of certain antibodies the serum was of low potency; hence the trial of the concentrated sera. Concentrated serum does not appear to have any effect on acute arthritis, though it may act as a proyhylactic against further experimental infection and it may produce an immunity of from one to two months.

Greeley writes rather positively concerning the cause, and very optimistically concerning the treatment, of "chronic rheumatism." He considers it is experimentally proven that the introduction into an animal of a parasitic organism whose virulence is nearly balanced with the host's power of resistance frequently results in the establishment of chronic foci of infection in locations not reached by the blood plasma and leucocytes in full concentration. He believes that pathologically the lesions of chronic rheumatism occur in this way where the circulation is at a minimum in the arteries in the ends of the bones. He considers that the results in fifty-three cases which he has treated by means of autogenous vaccines have been satisfactory. He obtained the vaccine five times from the blood, fifteen times from the urine, and thirty-three times from the throat; the latter source he considers to be always satisfactory except in gonococcal infection. The vaccines should be autogenous and should never be given in acute cases. The size of his dose (which does not seem to be necessarily exact) is from one hundred million to one billion, not oftener than once in eight to ten days. He believes implicitly in the future of this treatment.

Brackett's paper on arthritis associated with lesions of the genito-urinary tract is based on a wide experience, and his analysis of types and treatment seems to be clear and sound. He believes the responsible organism to be either the gonococcus or the colon bacillus. The gonococcal infections are of two types: One, usually monarticular, in which there is a direct bacterial invasion of the joint characterized by an arthritis of sudden appearance, giving evidence of very acute synovial inflammatory involvement. This process later shows an inherent tendency to marked contractures with strong adhesions and destruction of articular cartilage. In the acute stage the organism may at times be recovered from the joint. The second type is polyarticular and of a mildly inflammatory nature, slowly damaging the joints from toxic infection. This type may develop with an entirely quiescent external urethral condition. Arthritis associated with a colon bacillus infection of the genito-urinary tract is of a severe persistent type of multiple distribution, having a predilection for the larger joints and frequently for the spine. The treatment in the acute type of Neisser infection should be directed toward the urethral focus and also toward the joint condition. This later requires often radical treatment: in the early stages hot salt solution lavage through a small incision and a subsequent drainage. The later stages of these cases offer ideal conditions for inflation with 4-per-cent iodoform oil. In the toxic types of gonorrheal infection and in the arthritis of colon bacillus origin the treatment after search for and elimination of the focus should consist of measures aiding the absorption of exudates, improving nutrition, and favoring the return of motion.

Manning and Fassett report a case showing a typical clinical picture of Still's disease with small palpable glands in the cervical, axillary, and inguinal regions, in which carious teeth and a chronic otitis media were apparently the causes of the arthritis. Under general hygiene and the removal of the supposed sources of infection the condition rapidly improved. The case seems to be one more proof that Still's disease is an infectious or toxic arthritis.

O'Mallay draws an interesting analogy between otosclerosis and arthritis deform-

ans, meaning evidently the osteoarthritic, hypertrophic, or degenerative type. He reaches the conclusion that they are due to the same cause: "The essential factor underlying the morbid changes (in both diseases) is a chemical one affecting the nutritive stability of developing and fully developed bone and cartilage comparable to the rachitic phenomena, but how these chemical disturbances are actually initiated it is at present not possible to explain."

Robert Jones has reviewed in his characteristically helpful manner the surgical treatment of poliomyelitis, emphasizing the important principles which should form the basis for all orthopedic treatment. Perhaps the most essential factor is the possession by surgeon and patient of "boundless spirit and buoyant enthusiasm." In his description of his operations for correction of position and restoration of function in the paralyzed member by tendon transplantation, etc., he is most explicit, and one feels that no detail of technique is too small to be most carefully carried out.

Artificial ligaments and tendon fixation, especially the latter, he believes to be of great usefulness, not only because they improve function by maintaining a better position, but also because they allow overstretched but not completely paralyzed muscles to regain some degree of power.

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### RESULTS OF SOME FRACTURE OPERATIONS.

LANE (*American Journal of Surgery*, March, 1915) states that the measures that have to be adopted in the case of malunited and ununited fractures are important for two reasons: first, because malunion, and by that he means union of the fragments in such a relationship to one another as to materially impair the functional activity of the individual, and non-union of the fragments with consequent disability represent the failure of their treatment by means other than operative; second, because the difficulties that these operations present are enormously in excess of those met in the primary treatment of these injuries.

Nothing can be more disappointing than the results of the operative treatment of simple fractures by many surgeons, most of whom would appear to possess sufficient skill and surgical cleanliness to perform the ordinary operations of every-day life with a reasonable amount of success.

When we are told that the surgeon has to remove a certain proportion of steel plates after operations for simple fractures, we realize that this has resulted from gross carelessness of the necessary technique on the part of the surgeon, who is solely responsible for the failure of his methods of treatment. It is useless for that surgeon to blame the plates or his assistants, presuming he has control of the arrangements and that he is working in his own theater. There are some occasions in which a man is required to perform operations in unfavorable circumstances and with assistants who are imperfectly trained, and these conditions may offer some excuse for failure, but when it is necessary to remove a plate after an operation for simple fracture performed in circumstances that ought to guarantee a successful result, the operator should see to his technique and should not be satisfied till he has succeeded in excluding these avoidable failures absolutely from his practice.

Lane has had many opportunities of seeing fractures that have been operated on unsuccessfully, and has not been surprised at the unsatisfactory results obtained.

These failures were due to a want of observation of the simplest rules by which asepsis can always be insured. They were also brought about by a deficient knowledge of the simplest mechanical principles and to a want of skill and ingenuity. They failed chiefly by the employment of excessive force, immensely powerful traction on the fragments being a great source of danger. An immense amount of force was substituted for skilful manipulation, which is easily the most effectual means by which accurate apposition can be insured. Another common source of failure is to use ridiculously small plates. On principle one should employ the largest and the stoutest plates that circumstances permit.

In the case of malunion or non-union of fragments the difficulties are very much greater than in the case of simple fractures. In dealing with the latter the surgeon has merely to replace in accurate coaptation two broken surfaces and to retain them securely with or without a plate. The only insuperable obstacle to an accurate apposition of fragments in a simple fracture is excessive comminution of fragments, but in this case a satisfactory result may usually be obtained by skilful handling. When the fragments have united to one another in a bad position it is necessary to divide the junction in such a way as to secure perfect alignment of the bones and to avoid any reduction of the normal length of the limb. To secure perfect alignment at the cost of shortening of the bone renders the operation much less difficult, but this is a measure that a skilled surgeon would never adopt. Again, the union of fractures of two bones, such as the radius and ulna, in bad position, may accentuate the difficulties of accurate restoration of the fragments to their relationship to one another, especially if a fracture is surrounded by very important nerves, as in that portion of the radius encircled by the supinator brevis.

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**MORTALITY AFTER PROSTATECTOMY.**

TENNEY and CHASE (*Boston Medical and Surgical Journal,* March 25, 1915) as a result of tabulations and statistical studies based on many cases summarize as follows:

The greatest danger in the operation of prostatectomy is death from uremia or from conditions closely associated with it. After examining a patient we should be able to say that he is a good, fair, or poor risk with reference to this condition. If he is not put in the first class, we should try to put him there before operation or at least get him as near there as possible. Three fatalities from uremia reported to the writers in patients who had been carefully treated for more than two months show that we cannot always succeed, but the percentage of deaths from uremia among the cases operated within two days was 37, while the percentage of deaths from the same cause among patients who were observed long enough to have functional tests made was 19.

The second great danger in this operation is death from hemorrhage and shock. Is it possible that in our desire to avoid shock by doing a rapid operation, we have sometimes produced shock and hemorrhage by doing a needlessly rough operation? There are reasons in the reports sent the authors for thinking that this may have had some influence. It is fair to say that a patient whose hemorrhage has been thoroughly controlled seldom starts bleeding again unless the gauze or other means of control is removed too soon. Possibly some operators have been disappointed at nature's failure to stop a leaking vessel which they had failed to close before the patient left the table.

The third serious fatality is embolism, which may also be the cause for some pulmonary complications.

How can we avoid at least a portion of this risk?

Blood-vessels are necessarily torn and left untied. The wound is in an infected region and constantly bathed in a septic fluid. A larger raw area is left exposed to this contamination than in almost any other operation. Constant irrigation does not prevent embolism. It occurs when perineal, urethral, and suprapubic drainage tubes are used and after both operations. Is it possible that our well-meant drains are responsible for some of these emboli?

Suprapubic tubes long enough to rest in the prostatic cavity and perineal drains reaching the same distance are well placed to disturb the clots in the surrounding veins as the patient moves about. Is there any need of tubes after either operation? There will be no back pressure of urine with a good-sized opening in the bladder, and we would welcome an early closure of the incision we made, provided the patient does not suffer thereby.

The deaths under the heading of cardiac and general debility are many of them

uncertain. Some with autopsy would have been called uremic and some embolic. Some apparently represent the general giving out of the machine after the accident of prostatectomy and some a myocarditis.

It is not yet possible to say what the mortality of the operation should be because operators have such varied methods in their selection of cases.

A surgeon who believes that every old man suffering from prostatic obstruction is entitled to a chance of operative cure will have a higher mortality than the surgeon who refuses the desperate cases.

One skilful operator says privately that by selecting his cases he has done over ninety prostatectomies with one fatal result, and in contrast there is a mortality in some excellent hospitals of 20 per cent or more. It is certain that the mortality rate is lower than it was ten years ago, and a large credit is due Drs. Rowntree and Geraghty's study of color elimination in its relation to renal competency for the improvement.

Before this work appeared many of us knew the wisdom of preliminary drainage, but now we have a measure of the time necessary for this. Until some better method is made applicable, no prostatectomy should be done without testing the capacity of the kidneys for color elimination, using some chemical at least as reliable as phenolsulphonephthalein. By this intelligent delay many cases can be transferred from the desperate to the reasonably safe class of risks, and those truly inoperable can obtain some measure of relief from their misery.

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## ON BACILLUS PROTEUS INFECTION.

WALLACE and DUDGEON (*Lancet,* March 20, 1915) report a case of proteus septicemia associated with femoral thrombosis and pulmonary embolism with recovery. The treatment consisted in injection of proteus vaccine, autogenous as soon as this was possible, in gradually increasing doses of 15 to 30 million until finally 500 million were given with each injection. These inoculations produced a distinct beneficial effect from the first.

For some years they have investigated various infections due to bacilli of this group, although the case under discussion is unique in their experience. The commonest infections caused by proteus bacilli undoubtedly are pyuria due to cystitis, non-emphysematous gangrene of infected wounds, infected sinuses, and chronic localized infected processes of various kinds. Two of the most wide-spread suppurative inflammations of the skin which they have ever seen were due to the proteus bacillus. In both instances these cases had been diagnosed clinically and treated as staphylococcal infections, but all to no purpose. Infection of wounds by the proteus group may be of a simple or suppurative character, and a non-emphysematous but wide-spread gangrene may be induced by this organism. One of the authors met with a case of this kind in which the whole abdominal wound became gangrenous from an infection originating in an undiagnosed proteus pyuria. Undoubtedly the commonest infections caused by members of this group are confined to the urinary tract. It is the proteus group which produce the peculiarly offensive odor of the urine so well known in some forms of cystitis, and so fully represented in the badly flushed urinals by no means uncommonly met with even at the present day. The saprophytic life of the proteus group is so fully recognized that the pathogenicity may be and often is overlooked.

Proteus infections as a rule are mild, occasionally severe. Hicks recorded a fatal case of septicemia from which he recovered a proteus bacillus from the blood during life and from the tissue at the necropsy. McWeeny, in an interesting paper on meat poisoning already referred to, classifies such infections into three groups, one of which he calls "the group of putrefactive aerobes (proteus)." He, however, lays too much stress on the saprophytic existence of this group of bacteria as shown by the following sentence: "We have had to deal with a group of cases referred with more

or less probability to the action of organisms that lead a saprophytic existence in dead matter, and do not, as a rule, produce specific infective disease in living men or animals." In this paper reference is made to infection of meat food with proteus bacilli and to a most interesting outbreak of food poisoning recorded by Dieudonne, in which 180 Prussian soldiers were infected by a potato salad found to be saturated with this organism.

A case of meningitis due to a proteus bacillus was recorded by Ross, and in this instance the organism in question was cultivated from the cerebrospinal fluid during life. The proteus bacillus isolated by Ross in this case was not the typical organism according to the cultural characters given in his paper, but it had many points in common with bacteria of this family. It has been claimed that infantile diarrhea is due to bacilli of this group, and certain observers consider that infectious jaundice is excited by a special proteus bacillus. It should be fully recognized by clinicians that proteus bacteria are capable of exciting various infections in the human subject, mostly chronic or mild in character, but sometimes severe. The fact that this organism so often exists in the human body without exciting pronounced illness has led to the belief that it is incapable of exerting a severe pathogenic effect.

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## THE END RESULTS OF FRACTURE OF THE ELBOW.

NEUHOF and WOLF (*Surgery, Gynecology and Obstetrics,* March, 1915) mean by a perfect result one in which a full and normal range of motion is the sequel of the treatment of a fracture of the elbow. Anything short of this is termed an "imperfect result." The cases reported are consecutive ones and include simple and comminuted fractures, supracondylar fractures, and those of the humerus that enter the joint, fractures of the upper end of the radius and ulna; in short, all the types of fractures at the elbow-joint. Fractures about the elbow are chiefly injuries of childhood, but adults are not excluded. These authors find that after-results are by far the most favorable when the fractures are immobilized for the briefest period possible and when massage and immobilization are instituted promptly. Thus of 29 cases in which mobilization and massage were begun in the first week after injury 27 gave perfect results. Of 30 cases in which mobilization and massage were begun in the second week after injury 19 gave perfect results. Of 21 cases in which mobilization and massage began in the third week after injury there were six perfect results and 15 imperfect; of eight in which mobilization and massage began in the fourth week after injury, none gave perfect results; while of 11 cases in which mobilization and massage began in the fifth to the eighth week after injury only one gave a perfect result. The difference was striking in all the varieties of fracture. Patients, finally discharged with a perfect result, were referred for mobilization and massage at periods averaging 12.8 days after fracture. Patients finally discharged with an imperfect result were referred for mobilization and massage at periods averaging 32.1 days after fracture.

Of 23 cases in which fixation and hyperflexion was combined with early motion and massage the results were perfect with only one exception, this being a patient with the lower end of the humerus extensively shattered, nor could reduction be accomplished under anesthesia. From the view-point of leverage, the position of hyperflexion for fracture of the elbow is more advantageous than that of flexion in any angle less than the most acute obtainable, or in the position of extension.

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## TREATMENT OF RHEUMATIC INFECTIONS.

LARNED (*Chicago Medical Recorder,* December, 1914) states that the treatment of rheumatic infections should be conducted in the following wise: (1) Endeavor to cut short the course of the attack and the danger period during which there is

risk of cardiac complications. (2) Relieve the joint pains and other distressing symptoms. (3) Meet any complication that may arise, and be ready with the indicated treatment. (4) Guard against the danger of relapse, by prolonging the treatment beyond the period of symptoms and by special supervision during convalescence. (5) Insist upon rest in bed and appropriate diet. (6) Administer phylacogen to combat the effects of the toxemia from the infecting organisms.

The basic phylacogen is made from a large number of species of the well-known pathogenic bacteria, such as the several staphylococci and streptococci, bacillus pyocyaneus, diplococcus pneumoniæ, bacillus typhosus, bacillus coli communis, streptococcus rheumaticus, streptococcus erysipelatis, etc. The various organisms are present in the material before filtration in approximately equal proportions. The cultures are incubated at 37° C. for seventy-two hours or longer and the bacteria are killed, after which a preservative consisting of 0.5 per cent of phenol is added to the fluid, which is then filtered through porcelain. The basic phylacogen, made in this manner, and used in the preparation of the several specific phylacogens, is named "mixed infection phylacogen." This basic phylacogen is a "polyvalent" preparation, or polyphylacogen, since the organisms employed are not from one strain only of a given species, but from cultures made at frequent intervals and from a variety of sources.

Each specific phylacogen is prepared by modifying the basic material by the addition of an equal amount of the filtrate obtained by growing and treating the organism considered to be predominant in the pathological condition to be treated; for instance, in the preparation of rheumatism phylacogen, the streptococcus rheumaticus is grown and treated similarly to the several organisms entering into the preparation of the basic phylacogen. The filtrate obtained from the preparation of the rheumatism organism is added in equal amount to the basic phylacogen, and the resulting product given the specific name, "Rheumatism Phylacogen."

The phylacogen is always injected into the tissues of the patient, never given orally, and may be administered either subcutaneously or intravenously.

The initial (first) dose of phylacogen should be given subcutaneously, invariably, to develop any individual idiosyncrasy that the patient may possess. Never give the first dose of phylacogen in the vein.

The subcutaneous dose of phylacogen for the average adult is from 1 to 10 Cc., administered daily as a rule. Beginning with 1 Cc. the subcutaneous dose may be increased on the second day to 2 Cc., and by 1 or 2 Cc. daily thereafter, until the patient has recovered.

The intravenous dose of phylacogen for the average adult is from ⅛ Cc. to 5 Cc. administered daily as a rule.

When phylacogen is to be administered intravenously, the initial dose must always be given under the skin and not in the vein; then the first intravenous dose (the second actual dose) is ⅛ to ¼ Cc., second dose ¼ to ½ Cc., third dose ½ to ¾ Cc., fourth dose 1 Cc., fifth dose 2 Cc., sixth dose 3 Cc., etc. If the phylacogen is to be administered intravenously in a dose of 1 Cc., or less, it may be more convenient to dilute it with sterile water or sterile physiologic salt solution to a more easily handled volume.

The usual interval between doses is twenty-four hours. In certain instances the injection may be followed by prostration and an intense local or constitutional reaction. In such cases it is good practice to allow a longer interval than twenty-four hours (36 to 72) to elapse before the next dose is given, so that the patient may entirely recover from the effects of the previous injection. When patients react very vigorously to phylacogen it is desirable to extend the usual interval of rest between doses, but if too long an interval elapses before resumption of treatment, the case may relapse.

If any single dose, either subcutaneous or intravenous, should cause a very marked

systemic reaction, it is an indication that the next dose should either not be increased or should be slightly reduced, or that the interval between doses be lengthened by one or two days; it should then be gradually increased at subsequent injections, according to the tolerance of the patient, giving a little less than enough to cause a strong systemic reaction.

As a routine procedure, in the average case, the interval between doses should be twenty-four hours if the systemic reaction has disappeared by this time, otherwise the interval is lengthened until the reaction has subsided, as evidenced by the pulse returning to the same rate, or nearly the same, as observed prior to the last injection.

No definite estimation in advance can be made as to the number of injections or the duration of the treatment that will be required to bring about a relief of symptoms in an individual case.

In order to obtain direct evidence bearing on the clinical value of the phylacogen treatment, a series of searching tests was instituted in March, 1911. Rheumatism phylacogen, together with all the laboratory data then available, was submitted to capable physicians, with the request that the treatment be tested in such cases as were suitable and the actual results reported in detail. These physicians were strongly urged to report every case of failure or any result that was unsatisfactory for any reason, and the investigation then begun has been continued to the present time.

The author now has reports of three thousand and forty-seven cases of rheumatic infection treated with phylacogen. Of this series of 3047 cases, 2483 are reported as recovered or successful, and 564 are classed as failures.

These clinical reports have come from every part of the United States and from fifteen foreign countries, as follows: Canada, England, Scotland, Germany, Mexico, Cuba, South Africa, New South Wales, New Zealand, Jamaica, W. I., Argentine, Ecuador, Japan, India, and Belgium.

They include cases of all kinds, without regard to age, sex, nationality, color, condition, environment, locality, whether hospital or private case, whether suited or unsuited for treatment.

These figures need some explanation in order that the method of classification used may be appreciated. To obviate any criticism of "overenthusiasm," or "exaggeration," or "concealing failures," the verdict of the physician reporting the case is the one tabulated. If he states that his case recovered, it is classified as "recovered." If he reported that the treatment had failed, the result tabulated is "failure," no matter what the reason was.

The "failures," therefore, include everything that did not result in a recovery, no matter what the cause of the failure may have been.

It will doubtless be admitted this classification is conservative, and that if "unfairness" be charged it must be unfairness to the phylacogen, when it is remembered that during the early clinical testing of phylacogens many questions concerning dosage, intervals between doses, and methods of administration had not been fully developed, and especially when it is understood that this series includes all the cases reported, no matter what the age, sex, nationality, or environment of the patient may have been, and not taking into account irregular methods of treatment.

After three years' experience sufficient evidence has accumulated, however, to warrant an opinion as to the permanency of the results of the phylacogen treatment. Experience warrants the statement that some cases of rheumatic infection considered "cured," after the administration of two, three, or four doses of phylacogen, or as much even as 10 Cc. subcutaneously, at a dose, may relapse in a short time and require reinstitution of treatment, especially if there remain foci of infection in alveolar abscess or pyorrhea, tonsillar abscess, nasal septa or turbinates, etc. These should be investigated and receive the indicated surgical attention.

The writer believes that if the diagnosis is correct, phylacogen properly adminis-

tered, and all foci of possible infection eliminated, the patient will be permanently relieved of the particular infection treated. He does not wish to convey the impression that the treatment will prevent a reinfection—in other words, an entirely new attack at some subsequent time. He has had reports from twenty-seven patients bearing upon the permanency of recovery: one patient has remained well for two years, two for ten months, nine for over one year, three for eleven months. The time mentioned is duration of well-being since the last dose of phylacogen.

The contraindications to phylacogen treatment have now been pretty well determined by the experience gained in three years and the treatment of over three thousand patients.

Terminal cases, patients already dying, hopeless cases, cases with severe and dangerous cardiac involvement, or with pronounced arteriosclerosis, or with nephritis, should never be treated with phylacogen intravenously.

There are no contraindications to the careful and sensible subcutaneous administration of the phylacogen, unless it be nephritis.

Age alone presents no contraindication to the administration of the phylacogens; patients as young as five days and as aged as one hundred years have been successfully treated with phylacogen, using the appropriate dose according to age. For the young or aged patients the dose should be adjusted according to the individual in the customary manner.

Arteriosclerosis in patients fifty years of age or over is a contraindication to intravenous inoculation; these subjects may be treated subcutaneously, never intravenously.

In the cardiac complication of rheumatic infection, such as endo-, peri-, or myocarditis, never give phylacogen intravenously, and the subcutaneous method if used in such cases must be with the greatest possible caution and in very small doses, and the interval carefully chosen.

The practice of using phylacogen as a "last resort" is something that no one can prevent. It is one of the tests that every new treatment seems destined to undergo. Any physician will treat his ordinary cases in the manner best known to him, but when they become critical he thinks of something new and is willing to "give it a trial." Generally the test is most unfair, and oftentimes terminates with negative results. The continued use of phylacogen will automatically establish its proper place in medicine. No amount of argument can change the mental attitude of the physician toward a new product; it must earn its own reputation by doing the unusual and not the usual.

There have been and will be fatal terminations in cases to which phylacogens have been or will be administered. Of the 3047 cases reported as having received phylacogen, 41 terminated in death (approximately .013 per cent). An entirely unbiased, although critical, analysis of the case histories showing a lethal result discloses that such cases may be classified into four groups, as follows:

Death ensued as the immediate and direct result of the injection (endocarditis injected intravenously).

Death, although expected, was hastened by the injection.

Death resulted as expected despite the administration of phylacogen.

The demise of the patient was in no way connected with phylacogen administration.

Coffey states that in the treatment of about 300 cases, using upwards of 2500 injections, mostly intravenous, he has seen but one death following soon after injection which could be directly attributed to the phylacogen. In this case the postmortem findings revealed conditions contraindicating the intravenous method which was used. In several other cases the lethal issue was precipitated by the first dose, but in each instance this result was foretold and expected, the phylacogen being given as a last resort. It will thus be seen that the actual figures give no adequate idea of the remarkable character of the results.

The treatment of this affection with

rheumatism phylacogen was undertaken experimentally, with no expectation of good results, but simply for the purpose of ascertaining what could be accomplished, if anything. In a number of instances in which the condition had been diagnosed by competent physicians as true arthritis deformans, a great deal of benefit has been produced by the administration of rheumatism phylacogen, the good results consisting of relief from pain and greatly increased mobility of the affected joints. The best results, of course, have been obtained in those cases in which the condition was of comparatively recent origin. While nothing is claimed for rheumatism phylacogen in cases of arthritis deformans, it is only just to state the results so far obtained are encouraging. Great care in diagnosis should be exercised and the condition definitely differentiated from the arthritic changes due to gonorrheal infection, locomotor ataxia, or true gout. The author has the records of 114 cases diagnosed as arthritis deformans, in 73 of which the phylacogen treatment is reported to have proved successful, while in 41 it failed.

The secondary or toxic nature of arthritis deformans is a recent generalization which is receiving ample confirmation in many directions. Sir Wm. Arbuthnot Lane has reported cures following short-circuiting or excision of the colon when stasis was the cause of the absorption of the poisons of putrefying foods. Peter Daniels, of London, has shown that long-continued suppuration of the orifices of the body may give rise to these conditions, so that the cure of what may seem to be a trivial pus focus in the head may cure a disabling condition of the joints. Eugene Fuller now reports cases of cure by removing local pus foci in the genito-urinary system. Perhaps medicine has not witnessed a more beneficent discovery, for in our former ignorance as to the cause of these chronic joint troubles, it has pottered around with palliatives and then generally acknowledged defeat and abandoned the sufferers to a shortened life of misery and disability. The French detective, in unraveling a case, first "finds the woman." The diagnostician in every chronic joint trouble should first find the focus.

Of the 3047 cases 2483 were successful, 564 failed, and there were 41 deaths.

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### RESECTION OF THE STOMACH.

Von Haberer (*Archiv für klinische Chirurgie,* Bd. 105, Heft 6) reports his experience with resection of the stomach, his series comprising 183 resections. Of these 60 were for carcinoma and 123 for ulcer. In addition there were six cases of partial resection, 37 of unilateral resection of the pylorus, and 159 of gastroenterostomy. Carcinoma offers the widest justification for resection because by this means good results may be obtained in apparently inoperable cases. Contraindications are demonstrable metastasis to neighboring organs or the peritoneum or infiltration of the entire stomach. Large masses in the stomach, local glandular, or pancreatic involvement are not contraindications so long as they are removable.

Conclusions as to the duration of a cure are not reliable because recurrence may occur as much as four years after operation. In a small percentage of cases permanent cure is obtained, and even if recurrence takes place, the duration of life is three years or more following resection. In carcinoma the second method of Billroth is most rational because in case of recurrence it more nearly reproduces the condition of gastroenterostomy as applied to inoperable cases and because it permits of more radical procedure than the first method of Billroth. In ulcer the operation of choice is resection. In ulcer of the pylorus resection must be done because this condition is in the great majority of cases uninfluenced by gastroenterostomy. Also in all other ulcers resection should be done because by this means the possibility of the development of a carcinoma is overcome. Small ulcers may be removed by resection of the ulcerated area, but deeper seated ulcers should be treated by unilateral resection of the pylorus according to the method of

von Eiselsberg. Ulcers of the cardia are best removed by the technique of Hoffmeister and Polya.

The late results of ulcer resection are very satisfactory and can be made more so if we come to a full realization of the multiplicity of ulcers and are careful to remove all that are present. Multiple ulcers will more often be found if a systematic palpation of the stomach and its glands is carried out. An undiscovered ulcer may give rise to the erroneous opinion that recurrence has taken place. So-called recurrence would be much less frequent if more care was exercised in the search for ulcers and their removal at time of operation. Postoperative peptic ulcer of the jejunum which is so often seen after gastroenterostomy seldom occurs after resection. The result of resection in these jejunal ulcers is good, something that cannot be said for any other method of treatment.

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### EXPERIENCE WITH COAGULEN (KOCHER-FONIO).

HALPERN (*Beiträge zur klinischen Chirurgie*, Bd. 95, Heft 2) on the basis of his experience with coagulen as introduced by Kocher and Fonio concludes that it is a valuable means of controlling hemorrhage in carcinoma and after operation. On account of its lack of danger and undesirable after-effects and its prompt action it is of equal value to any hitherto described method of hemostasis and superior to some. It will often succeed in cases in which other means fail.

This substance consists in blood platelets from the blood of animals obtained by fractional centrifugation and mixed with grape-sugar. It is a light-brown, sweet powder, soluble in alcohol, ether, chloroform, salt solution, or water. In using it a 5- to 10-per-cent solution is made fresh in distilled water and boiled two to three minutes to sterilize. The solution is cloudy, but must not be filtered. By spraying a solution of coagulen upon the surface of ulcerated cancers bleeding which did not respond to other measures was controlled. In three cases of cancer of the tongue it proved very effective. In some cases the solution was applied by means of gauze compresses and a bandage. In a case of bladder cancer in which iron, silver nitrate, and adrenalin had been injected without effect, the bleeding was controlled by injection of 100 Cc. of 3-per-cent coagulen solution. Likewise in military surgery coagulen has been found of good service. The author has had no experience with the subcutaneous or intravenous injection of coagulen.

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### GASTRIC AND DUODENAL ULCER.

PECK (*Annals of Surgery*, April, 1915) reviews cases of non-malignant surgery of the stomach and duodenum from January 10, 1910, to January 1, 1915. Of the 120 cases, 73.3 per cent were duodenal, and 26.7 per cent gastric. Of the 88 duodenal ulcers, 71 were of the chronic indurated type and 17 were acute perforations. Of the 30 gastric ulcers, 17 were chronic nonperforative, and 13 acute perforations. Considering the group as a whole, 78.3 per cent were males, 21.7 per cent females. All of the acute perforating duodenal ulcers occurred in males, and most of the perforated gastric ulcers were males. Pain of the characteristic type was noticed in less than half the cases, though pain of some sort was a constant symptom. Hemorrhage also occurred in less than half the total number, and occasional vomiting in about the same proportion. Of the 71 chronic cases, 65 recovered and six died. Definite late reports have been obtained in 36 cases, in all but four of which the late results have been most satisfactory.

The 19 cases of chronic gastric ulcer in the series gave less satisfactory results than the duodenal. Gastroenterostomy was performed in 12 of the cases; partial gastrectomy in three; excision of the ulcer without gastroenterostomy in two; cautery puncture with gastroenterostomy in one; and exploratory celiotomy in one case. There were three deaths in the series, and

a fourth case returned to the hospital shortly after discharge with pneumonia, from which he died.

Twelve of the ulcers were on the lesser curvature at some distance from the pylorus; two were on the posterior wall; four were pyloric; and in one the position was not stated.

Hematemesis had occurred in 10 cases; it was absent in seven, and not mentioned in three.

Pain was a constant symptom, generally made worse by the ingestion of food; it was relieved by vomiting. It varied in intensity, but there were seldom free intervals lasting days or weeks, as is so often the case in duodenal ulcer. Pain was generally more constant and severe than the pain of duodenal ulcer.

Gastric analysis in 12 of the cases showed free HCl 40 or below in eight cases, 60 in two cases, and absent in two cases.

These findings again emphasize the fact that the results of gastric analysis are of only limited diagnostic value.

One recent case of penetrating indurated ulcer high on the lesser curvature was treated by cautery puncture (Balfour) with gastroenterostomy. The cautery point was plunged through the center of the ulcer, and by burning around the edges of the opening the entire ulcer was practically ablated; the opening left in the gastric wall was closed by suture, reënforced by a tier of Lembert sutures, and, finally, by the fatty tissue from the lesser omentum. The procedure is simple, quick, and Peck was much impressed with it as a means of dealing with high lesser curvature ulcers where V-excision is so difficult. Even if one does not succeed in cauterizing out all of the ulcer, the reparative process thus excited should greatly hasten its healing. The patient was quite free from symptoms when last seen.

The author believes it is wise to do gastroenterostomy in every case whether cautery puncture, V-excision, or any direct treatment of the ulcer is used; for it is quite possible that the chemical change in the gastric juice and contents, as pointed out by Patterson, has at least some influence in favoring healing of the ulcer. One case of ulcer, quite close to the cardia, in which exploratory celiotomy only was done one year ago, has continued to have pain and indigestion.

Of the three cases treated by partial gastrectomy, two recovered and one died of shock—a difficult case, with the ulcer situated far up on the lesser curvature. Both of the cases which recovered are quite well and free from gastric symptoms two years and six months and two years and nine months after operation, respectively.

Of the 12 cases in which gastroenterostomy alone was performed, there were three deaths: one from persistent vomiting which secondary operation failed to relieve; one from pneumonia with pulmonary embolus on the eighth day. The third fatal case left the hospital well from his operation, but returned in a few days ill from pneumonia, from which he died.

Of the nine cases which recovered, three are known to be free from gastric symptoms at twenty-one months, fourteen months, and four months after operation. Two continue to have pain and indigestion at twelve months and eighteen months after operation.

Of the 17 cases of acute perforated duodenal ulcer, two died before leaving the hospital: one of pneumonia on the seventeenth day after operation, and one after a secondary operation for subphrenic abscess twenty-two days after primary operation. Two others died shortly after leaving the hospital: one of pulmonary tuberculosis lighted up by the illness and operation, and one a few days after discharge of hemorrhage from an ulcer situated on the inferior wall against the head of the pancreas. In this latter case the primary operation showed a large, localized abscess in the upper abdomen containing gas; the site of the perforation was not located, and any attempt at closure was impossible.

No case died of extension of the peritonitis. In four of the cases simple closure

of the ulcer without gastroenterostomy was employed, with one death; in one drainage of a large localized abscess, without suture (the fatal case just cited). In 12, posterior gastroenterostomy was done in addition to closure of the perforation, with 11 recoveries and one death (pneumonia on the seventeenth day). While the series is too short to be conclusive, gastroenterostomy does not seem to have had an unfavorable influence on the mortality.

Of the 13 cases of perforated gastric ulcer, seven recovered and six died. The six fatal cases all died of peritonitis, one having pneumonia, one subphrenic abscess and pleurisy, and one delirium tremens, in addition to the peritonitis. Four of the six were late operations from one to five days after perforation, with peritonitis already well developed. The other two were operated upon twelve and thirteen hours, respectively, after perforation. Both had extensive leakage and peritonitis. Gastroenterostomy was not performed in any of the fatal cases, but was done in addition to closure of the ulcer by suture in five of the seven cases which recovered. In five of the 13 cases the perforation was prepyloric; in five on the lesser curvature at some distance from the pylorus; in three (two of which were advanced cases of peritonitis, and fatal) the site of the perforation was not accurately located, though it was believed to be gastric.

For the prepyloric group of perforations, indications for gastroenterostomy at the time of the primary operation would seem to be the same as in duodenal ulcer —*i.e.*, when the patient is in good condition and future pyloric obstruction probable, gastroenterostomy may be performed.

In perforation on the lesser curvature or anterior wall, the need of it is less evident, and simple closure by suture is usually sufficient. It is better to leave the gastroenterostomy for a future time than to do it under conditions which greatly increase the immediate operative risk.

It is frequently stated that symptoms of acute perforation often come out of a clear sky without previous symptoms of gastric trouble; of the 17 cases of duodenal perforation, all but two gave a history of previous indigestion, though in four of these the history was a short one of from one to two weeks. In the gastric group practically all of the cases had had previous ulcer symptoms.

# REVIEWS.

DISEASES OF THE DIGESTIVE ORGANS, DIAGNOSIS AND TREATMENT. By Charles D. Aaron, M.D. Illustrated. Lea & Febiger, Philadelphia, 1915. Price $6.00.

Dr. Aaron is to be congratulated for attempting to cover in a book of moderate size the modern conception of diseases of the digestive tract, embracing as it does the mouth, liver, gall-bladder, biliary passages, pancreas, and rectum. This has not been attempted to the same extent in any recent work on the subject in English with which we are acquainted and represents a departure which is to be encouraged.

The work is complete and embodies in a systematic way our knowledge on these special subjects. Dr. Aaron, who has translated Schmidt's work on the feces, has betrayed the influence of that author, and the simple fecal methods adopted and described in the present work deserve more recognition. The value of fecal analysis is thoroughly emphasized and its technique amply described. The book is singularly free from any of the complicated metabolic methods which have been extolled in the study of digestive disorders.

The chapter on the *x*-ray is supplemented by well-selected pictures, but no adequate description is given of the technique or interpretation, this being a persistent fault in practically all works of this type. Diet is

discussed in one chapter and proprietary foods in another. We are rather surprised to note no calorie tables and but a rudimentary reference to the importance of this subject. This should be remedied in the next edition. Probably the most valuable portions of the work are those devoted to treatment, and here the author is deserving of praise. These chapters show that the author has familiarized himself with French and German methods. Lavage, massage, hydrotherapy, mineral waters, medicinal treatment, as well as local intestinal treatment, all receive adequate recognition.

The discussion of diseases of the mouth is sufficiently complete to deserve mention, and many of the rarer conditions are discussed, while the reviewer notes with pleasure the inclusion of oral sepsis and diseases of the salivary glands.

Diseases of the stomach are rather incomplete, more attention being paid to treatment than to a description or discussion of the conditions. We are surprised to note no chapter on physical examination or history taking, no summary of the analysis of prominent symptoms, but a few words and no description of the diagnosis of achlorhydria hemorrhagica gastrica, no mention of diaphragmatic hernia, gastriovolvulus, no differentiation of acute or chronic ulcer—all points of sufficient importance in the present state of our knowledge. The subject of disturbances of the autonomic system is discussed in a very superficial sort of a way so as to give the reader little information on this subject of growing importance.

Duodenal ulcer should receive more attention, in our estimation. The newer views on constipation and the most thorough and satisfactory medical treatment are well described.

The book, however, is not above criticism. References are few and far between, and no bibliography is available, a point which such a work along special lines should scarcely be without. The one fault throughout the work is the lack of sufficient detail as to methods. All the well-known tests for carcinoma are described, but none of them with sufficient detail to enable one to thoroughly understand their practical execution. The same is true in the chapter on diseases of the liver, where mention is made of the levulose, tetrachlorphthalein, and urobilin tests for liver function, but no one from such a description could understand the careful technique necessary for this work, particularly in the phthalein test. To merely mention and not describe is a mistake which should be corrected. Bacteriology of the bowel receives little recognition, and while intestinal fermentative dyspepsia is mentioned, no attention is given to the protein types so ably set forth by Herter and others in this country. No mention is made of the diagnosis of gall-ducts by duodenal intubation, even though duodenal feeding and pyloric dilatation receive sufficient space. The recent work on cholesterol in reference to cholelithiasis receives practically no mention.

While many of the points mentioned above deserve criticism, the book is to be entirely recommended as embodying in relatively compact form a very good résumé of our modern knowledge of digestion in practical form. Treatment with the exception of diet is discussed in more complete fashion than any similar work on the subject, and the book is well worth reading and digesting. M. E. R.

THE INTERNATIONAL MEDICAL ANNUAL FOR 1915. William Wood & Company, New York, 1915. Price $4.00.

The International Medical Annual, which has now been published for 33 years, may be said to be better in this present issue than ever before. In the 1915 issue there are special articles on Naval and Military Surgery, with references to personal experience in the treatment of wounds. Doubtless these articles are introduced because the volume is in reality a British publication which has been reprinted in this country. There are also articles dealing with the alterations and additions which have been made in the new British Pharmacopœia which appeared at the close of last year. An improvement in the book is the

use of larger type, which makes it easy to read. There are articles upon Radioactivity, Electrotherapeutics, and a so-called Dictionary of Treatment, followed by a general consideration of all departments of medicine and surgery, including the specialties. Naturally, most of the authors are Englishmen, Irishmen, and Scotchmen, but we notice as American contributors Dr. Andrews, of Chicago, who writes the article upon Abdominal Surgery; Dr. Gruner, of Montreal, that upon Clinical Pathology; Dr. La Garde, a retired colonel in the United States Army, that upon Naval and Military Surgery. There is a second article upon Naval and Military Surgery contributed by Dr. Wildey, who is Deputy Surgeon-General of the Royal Navy.

The book is copiously illustrated and contains no less than 71 plates, as well as numerous illustrations such as are ordinarily found in medical works.

We note with interest in the article upon Shock that the theory that it depends upon primary cardiac failure now finds scant favor anywhere. Support is given to the view that the condition is due to an exhausted vasomotor center, but while credit for this view is given to Crile and Mummery, and although these two authors have written much upon this theme, long before their day H. C. Wood and others strongly advanced this view and based a line of treatment upon it. Evidently Dr. Short has not great confidence in the so-called Acapnia theory of Henderson, nor does he think that the so-called Adrenalin Exhaustion theory will hold water. Short's own view of the cause of shock is that it is due to paralysis of the great nerve cell groups about the fourth ventricle, including it may be the vasomotor center. He agrees with Crile and Mummery in thinking that strychnine and alcohol do more harm than good. We agree with him as to alcohol, but differ with him as to strychnine, which, if used before or during an operation, probably increases shock, but after an operation may be distinctly beneficial. In Short's opinion it is unwise to use adrenalin injections in chloroform accidents, because he thinks the combination produces what he calls a deadly effect. He is in doubt as to the value of pituitary extract. He states that a little alcohol may help a patient who is more frightened than hurt. Dr. Short thinks rightly in stating that Crile has done much good in calling attention to this important subject and in instituting measures for its prevention.

For severe wounds caused by injuries due to war when shock is increased by pain and laceration of the tissues, Short states that novocaine may be applied to the surface of the wound without danger and that it may be usefully followed by painting with anæsthesin dissolved in spirit. The spirit produces pain for a moment, but he claims that the anæsthesin abolishes pain for two or three days.

DIARRHEAL, INFLAMMATORY, OBSTRUCTIVE, AND PARASITIC DISEASES OF THE GASTROINTESTINAL TRACT. By Samuel G. Gant, M.D., LL.D. Illustrated. W. B. Saunders, Philadelphia, 1915. Price $6.00.

It is evident from the title of this book that it deals largely with the medical rather than the surgical treatment of the conditions described, and this is not surprising when it is remembered that the author has already contributed a volume dealing with constipation and intestinal obstruction and thereby covered to a large extent the surgical procedures which are connected with the relief or cure of intestinal lesions which cannot be managed or cured by drugs or diet.

In the present volume, which covers practically 600 pages, there are no less than 52 chapters. Dealing first with Examination and Diagnosis, and including under the head of Diarrhea as a Manifestation of Organic Diseases, conditions of the Eye, the Mouth, the Thyroid, the Liver, the Pancreas, the Kidneys, and even Diabetes Mellitus, in all of which the diarrhea is supposed to be a secondary manifestation. There are other chapters upon Acute Infections and Contagious Diseases as a cause of diarrhea, while chapter 7 deals with the more unusual forms of parasitic diarrhea,

such as Cochin-China Diarrhea, Hill Diarrhea, etc. Following this there is another chapter entitled Sundry Diseases Inducing Diarrhea in which the number of maladies is distinctly miscellaneous.

It is impossible in this review to give the titles of all the 52 chapters. One of them has the somewhat unusual title of Compensatory Diarrhea, a term which scarcely seems justifiable, since the author states that it is a form of diarrhea due to disturbed metabolism, and that it occurs in thyroidism, gout, diabetes, Bright's disease, and other conditions, even old age being considered as a factor in producing so-called compensatory diarrhea. This is a somewhat unusual application of the word compensatory.

The book then proceeds to consider those forms of diarrhea which depend upon definite intestinal lesions, varying from ordinary enteritis and the lesions induced by tuberculosis and syphilis to amebic dysentery and bacillary dysentery. Several chapters are devoted to each one of these subjects. Following them are chapters upon diarrhea due to intestinal worms and to protozoa in general. The remaining chapters are more definitely connected with the subject of treatment. Thus chapter 41 discusses the employment of intestinal irrigation in the treatment of all the forms of diarrhea already discussed, whereas chapters 42, 43, 44, and 45 deal with obstructive conditions which result in diarrhea and which must be treated mechanically or surgically. Chapter 48 is made up of a formulary which doubtless will prove of considerable interest to some practitioners, the prescriptions being taken from well-known text-books upon this subject. The remaining chapters are also definitely surgical and deal with the various operations needed in diseases of the appendix, the colon, the sigmoid, and the rectum.

It may be said that the plan of the book is an unusual one in that it starts with a symptom, diarrhea, and proceeds to a discussion of the causes which induce it and the methods to be undertaken for its relief. If it will serve to impress, upon the young practitioner in particular, the fact that diarrhea is a symptom and not a disease, and that every case should be carefully investigated in order to determine the cause and remove it, the volume will do much good, since many cases of chronic diarrhea are due to the fact that the physician treats the symptom as if it were a disease when it first appears, and, not removing the cause, converts an acute condition into a chronic one.

OUTLINES OF INTERNAL MEDICINE FOR THE USE OF NURSES. By Clifford B. Farr, A.M., M.D. Illustrated. Lea & Febiger, Philadelphia, 1915. Price $2.00.

The author points out that in many training schools for nurses systematic courses in medicine are now being offered in the place of the desultory, haphazard lectures formerly in vogue, and his object has been to prepare a small text-book which nurses can use in following such lectures. The book is divided into ten parts, eight of which are devoted to Diseases of the Various Systems and two to Harmful Agencies, Physiological, Chemical and Bacteriological. Each part is introduced with a discussion of the symptoms and signs most often observed in a disease. The book with its index makes a little over 400 pages. It is printed in large, easily read type and contains much of value for the persons for whom it is intended. The author states in his preface that he has left out subjects such as bed-making, cupping or hot-packing. Why he should have left these out and then written a chapter upon the Caloric Value of Various Foodstuffs we do not understand, nor do we understand why he has put in a description of paracentesis abdominis and left out one on cupping. We find so brief a description of the use of the cold bath in typhoid fever as to be useless to a pupil nurse. Here is a point where minute detail in instructing the nurse in what she should do might be well followed. Some pages of the book, in its therapeutic directions, would seem to encourage a nurse to prescribe remedies, as, for example, in the article on Myositis and Myalgia, it is stated that the salicylates

such as aspirin, sodium bicarbonate, ammonium chloride, and in the latter stages nux vomica, are sometimes beneficial. A very brief description is given of strychnine poisoning, but nothing is said about its treatment.

It must not be thought, however, from these criticisms that the book is unsatisfactory. It will prove useful to any nurse who is well instructed as to the limitations of her duties.

A Manual of Personal Hygiene. By American Authors. Edited by Walter L. Pyle, A.M., M.D. Sixth Edition, Revised and Enlarged. W. B. Saunders Company, Philadelphia, 1915. Price $1.50.

Including the editor, there are ten contributors to this comparatively small volume of 526 pages. When the first edition of this book appeared fifteen years ago it was stated in its preface that its object was to set forth plainly the best means of developing and maintaining physical and mental vigor, and care was taken that technical phraseology should be avoided as far as compatible with the scientific value of the text. In the present edition a new chapter has been added on the Hygiene of Infancy. This is manifestly a most important addition. As some of our readers may know, the articles upon the Hygiene of the Digestive Apparatus are contributed by Dr. Charles G. Stockton, of Buffalo; those upon the Hygiene of the Skin and its Appendages, by Dr. George H. Fox, of New York; Hygiene of the Vocal and Respiratory Apparatus, by Dr. E. Fletcher Ingalls, of Chicago; that upon the Hygiene of the Ear, by Dr. B. Alexander Randall, of Philadelphia; the Hygiene of the Eye, by Dr. Walter L. Pyle, of Philadelphia; the remaining chapters dealing with the Hygiene of the Brain and Nervous System, by Dr. J. W. Courtney, of Boston; Physical Exercise, by Dr. G. N. Stewart, of Cleveland; the Body Posture, by Dr. J. E. Goldthwait, of Boston; Domestic Hygiene, by Dr. D. H. Bergey, of Philadelphia; that upon Food Adulteration and Deterioration is covered by Dr. Wiley. No statement is made as to who has prepared the new chapter upon the Hygiene of Infancy. That the book met the approval of the profession and the laity is proven by the appearance of six editions in 15 years.

The Principles of Bacteriology. A Practical Manual for Students and Physicians. By A. C. Abbott, M.D. Ninth Edition, Thoroughly Revised. Illustrated in Black and Colors. Lea & Febiger, Philadelphia, 1915.

Abbott's Bacteriology had no sooner appeared than its valuable qualities were universally recognized. The ninth edition makes its appearance within, if we recollect correctly, fifteen years after the appearance of the first. There are 29 chapters in the book dealing with the methods used in the study of bacteriology and a differentiation of various bacteria and their effects in animals and man.

When we remember that modern bacteriology has existed only since 1880, and, as we know it at present, only since a much later date than this, the advances which have been made are remarkable.

One of the reasons why Dr. Abbott's book has been popular is that it is clear in its description as to technique, and its text is so arranged that it is useful not only to the man who is working in the laboratory, but also to the general practitioner, who wishes to have at hand a book to which he may refer in regard to some case of interest, or which he may use with advantage if he has fitted up for himself a small laboratory in which to do ordinary work.

Alveodental Pyorrhea. By Charles C. Bass M.D., and Foster M. Johns, M.D. Illustrated W. B. Saunders Company, Philadelphia, 1915. Price $2.50.

This octavo volume of 167 pages with 42 illustrations might have been compressed into much less space by the use of smaller type and less leading, but these characteristics permit easy reading. The book is so brief that it can be readily gone over within an evening. It deals, of course, with a subject which has recently been brought forward most prominently in connection with the use of emetine as a remedy. For many years it has been recognized, to a less extent than at present, that pyorrhea alveolaris is

capable not only of causing loosening and loss of the teeth, but also of seriously impairing the general health, disturbing digestion, and of occasionally inducing bacteremia and arthritis. The book illustrates what many of our readers are now familiar with, namely, the return to popularity of a drug at one time largely employed, but which went considerably out of use because of the comparative rarity of amebic dysentery in this country, although it was known for many years that this tropical form of dysentery had a specific remedy in ipecac or its alkaloid emetine. As a summarization of our knowledge of pyorrhea alveolaris it is, of course, authoritative because its authors have been pioneers in the study of this interesting and important condition.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by H. A. Hare, M.D., Assisted by L. F. Appleman, M.D. Volume 2, June, 1915. Lea & Febiger, Philadelphia, 1915.

We have so often called attention to Progressive Medicine during the eighteen years which it has been published that most of our readers must be thoroughly familiar with the subject which it seeks to present to the medical profession, namely, a story of the advances in the various departments of medical and surgical science during the past twelve months. The contributors in every instance are men who have won a permanent and prominent place in their special departments. The five articles in the present volume are: Hernia, by Dr. William B. Coley, Professor of Clinical Surgery in Cornell University Medical School; Surgery of the Abdomen, Exclusive of Hernia, by Dr. John C. A. Gerster, Instructor in Surgery, New York Polyclinic Hospital and Medical School; Gynecology, by Dr. John G. Clark, Professor of Gynecology in the University of Pennsylvania; Diseases of the Blood, Diathetic and Metabolic Diseases, Diseases of the Thyroid Gland, Spleen, Nutrition, and the Lymphatic System, by Dr. Alfred Stengel, Professor of Medicine in the University of Pennsylvania; and the last article upon Ophthalmology, by Dr. Edward Jackson, Professor of Ophthalmology in the University of Colorado. The volume is copiously illustrated, showing in detail the various operative procedures and other matters of interest which are described in the text.

A TREATISE ON MATERIA MEDICA AND THERAPEUTICS. Including Pharmacy, Dispensing Pharmacology, and Administration of Drugs. By Rakhaldas Ghosh, L.M.S. Edited by D. H. Deare, with the assistance of Birendra Nath Ghosh, F.R.F.P.S. Sixth Edition. Calcutta: Hilton & Co., 1915. London: Simpkins, Marshall, Hamilton, Kent & Co., Ltd. Price 4s. 6d.

Earlier editions of this book, prepared by an East Indian author, have been noticed with interest since 1901, when the first edition appeared. It is to-day a far better book than it was when it first appeared, and can be used by practitioners in England and America with advantage. Printed on very thin paper it contains an immense amount of information. Its text is arranged not alphabetically, but rather pharmacologically and chemically. Adequate consideration is given to Organotherapy, Vaccine and Serum Therapeutics, and the Physiological Action of the Well-known Drugs. In many ways the book closely resembles that which we recently reviewed by Dr. J. Mitchell Bruce of London. The present edition is in accord with the last issue of the British Pharmacopœia. The text is too condensed to make it easy reading on the part of the general practitioner, but, on the other hand, he may often turn to it when he wishes to get in a nutshell the action of some remedy and a statement as to the dose which is commonly given.

MATERIA MEDICA AND THERAPEUTICS. A Textbook for Nurses. By Linette A. Parker, B.Sc., R.N. Illustrated. Lea & Febiger, Philadelphia, 1915.

We have already reviewed in the THERAPEUTIC GAZETTE during the last year a number of books specially prepared for nurses by medical men, or by nurses in charge of training schools. This little book of about 300 pages contains 30 chapters and discusses in a very brief way a very large number of subjects, giving probably enough

information about drugs to meet the needs of the average nurse in training. Curiously enough, in the chapter on "Specifics," so-called, the statement is made that mercury still remains the one reliable specific in syphilis, although a brief space is given to salvarsan and neosalvarsan. It is interesting to note that antacids are put in as drugs that affect the blood. Taking the text all in all, however, it may be truthfully said that it is well written and the statements are generally reliable and clearly put.

THE PRACTICAL MEDICINE SERIES. Volume I: General Medicine. Edited by Frank Billings, M.S., M.D., and J. H. Salisbury, A.M., M.D. Series of 1915. The Year Book Publishers, Chicago, 1915. Price $1.50. Price of the Series $10.00.

In previous years we have called attention to the earlier issues of this summarization of medical literature for the past twelve months. The names of the authors are a guarantee of their ability to pick out that which is useful from current medical literature. The publishers state that the intention is to prepare the text in such a way as to make it useful to the general practitioner, rather than to those who are teachers in medicine and who have access to current medical literature.

OCCUPATIONAL AFFECTIONS OF THE SKIN. By R. Prosser White, M.D., M.R.C.S. Paul B. Hoeber, New York, 1915. Price $2.00.

The intention of this book is to give a brief account of the trade processes and agents which give rise to affections of the skin, these affections being by no means as uncommon as some persons have supposed. After some preliminary remarks the author takes up the effects of various physical agents upon the skin, such as electricity, the *x*-ray, cold, sunburn, etc, the effects of acids, and caustic alkalies. This is followed by a consideration of the substances which cause discoloration of the skin, as well as actual lesions, and the different forms of dermatitis, including fulminate of mercury, biniodide of mercury, and phosphorus dermatitis, are taken up, as are also a number of other forms of dermatitis produced by substances handled in the arts, varying from the aniline dyes to vegetable dyes, and olive oil dermatitis, as in tobacco rolling. Chapter five deals with the petroleum series; chapter six, with the consideration of the aniline series; and under the heading of Dermatitis Venenata, lesions of the skin produced by various plants are discussed. The last chapter (chapter eight) deals with lesions which are due to infections. This chapter is headed Zoetic Dermopathy.

This summarization of the contents of a very interesting volume will give our readers an idea of its scope; and its importance is not to be ignored in view of the fact that such lesions may have not only clinical but medicolegal bearing.

WHAT EVERY MOTHER SHOULD KNOW. By Charles Gilmore Kerley, M.D. Paul B. Hoeber, New York, 1915. Price 35 cents.

This little paper-covered book, prepared by a well-known writer upon diseases of children, is designed, as its title indicates, to instruct the mother as to what she should do in the care of her child, and as it is written by one who knows whereof he speaks, it deserves attention. Between each page is a blank page for notes by the physician, the mother, or the nurse. The book, or as the author calls it this pamphlet, was prepared at the suggestion of a child's welfare organization and is particularly designed for the mother of moderate means, who will receive from its pages concise, readily understood, and practical instructions for the care of children.

LOSS OF HAIR. Authorized Translation from the German of Dr. Franz Nagelschmidt. By Richard W. Müller, M.D. William R. Jenkins Company, New York, 1915.

In the preface to this book the author speaks of "the astoundingly phenomenal results" of the Nagelschmidt modification of the Kromayer quartz lamp. It is further stated that "another astounding accomplishment of Dr. Nagelschmidt's light treatment is this, that in many cases the new hair was of the normal color, brown, black, or blond, in place of gray hair, giving the patients a decidedly rejuvenated appearance, much to their delight." This sounds much like an advertisement. There are numerous

illustrations of alopecia areata before and after, some suggesting the advertisements of the Sutherland Sisters. Seborrheic alopecia cases numbering 53 were cured from one treatment, wherein he considers as a criterion of the cure: (1) Cessation of the subjective troubles (irritation, itching, painfulness); (2) disappearance of the scales; (3) regeneration of the falling hair; (4) increase in the length of the original hair or of the entire hair.

Of 22 cases of total baldness only six remained uncured.

Treatment is applied by means of what is called a medical quartz lamp. The treatment for alopecia areata is from ten to twenty minutes' duration, according to whether blonde or brunette is the subject. The resulting reaction should be an intensive erythema, eventually followed by a light serous exudation. The reaction sets in after the treatment, beginning from four to six hours later; it is accompanied by some burning and swelling, with a scant exudation; blisters need not necessarily develop. Occasionally there occurs a violent neuralgic trouble which makes a narcotic necessary for from twelve to twenty-four hours. Relief is usually obtained by applying compresses dipped in ½-per-cent resorcin solution. Edema of the forehead and swelling of the eyelids may occur if the light be applied to this region. The edema disappears in a few days, while the redness of the scalp remains for about two weeks. It takes on gradually, with more or less desquamation, a brown tint and finally ends in a distinct pigmentation. The serous exudate is followed by crusting and scaling in large flakes, which may be hastened by the application of 2-per-cent salicylated vaselin. A second treatment may be given three or four weeks later, and so on, about one treatment every month. Each following treatment is kept up a little longer. Sixty minutes is the maximum. In alopecia areata every spot must be separately treated. The author regards the use of the ultra-violet light by means of the modified Heraeus quartz lamp as the surest method of treatment of alopecia in its various forms and of many other hair affections. No injury has been observed as the result of treatments.

FEWER AND BETTER BABIES, OR THE LIMITATION OF OFFSPRING BY THE PREVENTION OF CONCEPTION. By William J. Robinson, M.D. With an introduction by A. Jacobi, M.D., LL.D. The Critic and Guide Co., New York, 1915.

This rapidly compiled volume is made up in the main of feeble arguments and poorly expressed platitudes, but is perhaps redeemed from the hopelessly commonplace by what might be called an original form of humor. The chapter headed "The Best, Safest and Most Harmless Means for the Prevention of Conception" consists simply of blank pages. The intelligent reader will have had more than enough in the first few pages. The prurient one who reads to the end will be bitterly disappointed. The single redeeming trait in the work is the introduction by Jacobi dealing with broad generalities.

A PRACTICAL TREATISE ON DISEASES OF THE SKIN FOR THE USE OF STUDENTS AND PRACTITIONERS. By Oliver G. Ormsby, M.D. Illustrated. Lea & Febiger, Philadelphia and New York, 1915.

This excellent book has for its object the presentation of the subject of cutaneous diseases in sufficient detail to be of value to the student and practitioner of medicine, and makes a particular point of including the important advances made during the past year. There are some 136 pages of introduction dealing with anatomy and symptomatology, prognosis, general therapeutics, and classification. Individual diseases are classed under Hyperemias and Inflammations, Hemorrhages, Hypertrophies, Atrophies, Pigment Anomalies, New Growths, Neuroses, Parasitic Affections, and Diseases of the Appendages.

Under this classification one finds chancre and the secondaries and tertiaries of syphilis grouped under New Growths, together with myomas, tubercles, and sarcomas. To one not intimately familiar with skin diseases such terms as Gayle, Acrodynia, Erythema Perstans, Verruga Peruana, Gangosa, Causalgia, Meralgia Paresthetica, Trichototillomania, Pinta,

Ixodes, Dracontiasis, Myiasis Oestridæ, Craw-Craw, Asteatosis, Piedra, Trichostasis Spinulosa, Onychauxis, and Perleche should bring a conception of how needful is an occasional reading of a modern textbook to keep abreast with the nomenclature of the times. As to Perleche, by which is meant crusting of the corners of the mouth in infants, the author states that the recognition of this disease is facile, that it is due to the streptococcus, is contagious, and is propagated chiefly among the children of the poor.

The illustrations are excellent, the text lucid, and the book a highly desirable one for the general practitioner.

# CORRESPONDENCE.

## LONDON LETTER.

BY J. CHARLTON BRISCOE, M.D.

Since last writing there has been a considerable change for the better in the weather. During the preceding four months of the year we have had a full share of rain, but very little fog or snow. This month has set in with varying spells, series of cold days being interspersed with April sun and rain.

This country has had to deal with a very large number of wounded from the recent wars in Northern France and Belgium. As far as can be made out, the general plan is to keep the hospitals in the country districts and provincial towns as full as possible, leaving as many beds as can be spared in the hospitals in the central part of the country and in London vacant for a sudden rush, so that although a great many wounded are brought into the country, the London hospitals are not overwhelmed with their numbers. The frost-bite condition is now only seen in exceptional cases, but there are still a few left who were brought over in the autumn and who have not yet fully recovered. We have quite recently had some cases of the new type of condition, namely, those suffering from poisonous gas inhalation. Apparently the worst of these cases are detained near the fighting area, but a number of them, who were not so seriously affected, have been brought over here. Some of them who have been moderately affected, insomuch that they were unconscious for a few minutes, have come under my care and present a peculiar condition. They are liable to sudden exacerbations of different types. On the whole they are fairly comfortable and are able to take their food in the ordinary way, but they nearly all of them complain of pain in the trachea and bronchi and their referred areas. Without the slightest reason, however, they suddenly develop alarming symptoms, such as an acute attack of dyspnea, which appears to be of two types, either a laryngeal spasm or a condition resembling asthma. Others develop sudden headaches and attacks of faintness, but these cases yield to remedies in a short time, although they are liable to recurrences of the condition. At the present time there does not seem to be any indications as to how long the liability to attacks of this sort will continue. One of these patients has developed an entirely different type of condition, in that he is peeling all over like a very bad case of scarlet fever.

I have also had two cases of severe acute nephritis which were sent back from the trenches, and in neither case does the condition seem inclined to clear up on the regular treatment. One of the latter had been "gassed," but I doubt whether this had anything to do with the condition of the kidney. The wounds still seem to come to hospital in a septic condition.

The sinking of the *Lusitania* has aroused world-wide resentment, and the general opinion over here seems to be that America is in rather an awkward position in knowing how to deal with it, and the political situation is watched with much interest. No doubt as a direct result of the brutality of this incident riots occurred in various districts in London, and in the cases I have

seen the rioters did their work very efficiently, but there has been no loss of life recorded in the papers. There have, however, been a number of cases in which rioters smashed up the property of those whose names indicated a German or Austrian extraction, and thus individuals have suffered undeservedly. In one such instance, the shop of an Austrian, whose parents for three generations had resided in this country, who had himself served in the Territorial Forces and has children in the army, was considerably damaged. The special constables had been warned that rioting was likely to take place, and they were called out to protect the property of the aliens. In one particular instance the rioters got on top of a bus, loaded up with ammunition in the form of broken bricks and stones, and as they passed the property of aliens discharged a volley which naturally smashed many glass windows and did other damage. Apparently the general tendency of the crowd then turned toward looting rather than destruction. A regular deluge on Thursday, the 13th inst., exercised a wholesome effect on the rioters and was most opportune, occurring on the second night of the riot when lawlessness was anticipated as being at its maximum. The situation was, however, got under control, and since the 14th the rioting has ceased. It is perhaps as well that a Zeppelin raid did not take place during the period of rioting, otherwise there might have been bloodshed. Some people are by no means sure that interning the aliens is a wise plan, as the knowledge that they are roughly treated, or even worse, may influence the German mind in planning a raid on London.

In previous letters I have mentioned the epidemic of cerebrospinal meningitis which occurred in the winter months and chiefly affected the troops. The epidemic did not spread to any extent among the civil population, although a number of cases occurred chiefly in people who had been traveling by train. They were quite sporadic, and the infection does not seem to have been spread by these people. Among the military it seems to have been clearly demonstrated that bad sanitary surroundings in the shape of overcrowding, poor ventilation, and lack of sunshine have been responsible for the incidence of the disease. A large number of carriers have been detected. As far as I can gather, if the carriers and contacts are isolated for about a fortnight, and especially if the weather is fine and sunny, the organisms tend to disappear from the throat very rapidly. A long report of this disease is in process of construction, and it should be extremely interesting. The bacteriologists have been remarkably busy in the search for this organism, and they will be able to contribute valuable information on the subject.

The general idea relative to the present political crisis in this country is that it has opened the advent of some form of universal service. In this respect, no doubt, the medical profession will also be affected. Last week the *British Medical Journal* sent round forms to be filled in to ascertain what, if any, extra work members of the profession could devote to the service of the military, and no doubt this is one of the preliminary notices in the direction of compulsory service. We do not anticipate that such service will be in the strictest sense a universal service, but that the work of the nation will be compulsorily organized for the greatest efficiency in various directions. This is all for the good, and I do not think there will be a single dissenting voice.

The recent tram strike is looked upon with great disfavor by the general public by reason of the fact that regular means for settling strikes have been provided, and the agreement to refer such strikes to the Conciliation Boards does not expire until the end of June. The strike has seriously incommoded the public.

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## THE EFFECT OF MASSIVE DOSES OF DIURETIN.

To the Editor of THE THERAPEUTIC GAZETTE.

SIR: The following case may be of interest to your readers:

Woman, aged sixty-five, with arteriosclerosis, chronic interstitial nephritis, aortic and mitral regurgitation, and uterine

fibroid. Had edema of the legs for several months, but neglected it; blood-pressure 230 mm.; dyspnea; persistent dry cough. The cough, which had lasted since before New Year's, disappeared after a few doses of heroin 1/16 grain and cherry-laurel water 10 minims. From May 20 to May 28 there was a gradual diminution in the urine output, this being but 4 ounces on the 28th. The ordinary diuretics had no effect in increasing the amount of urine. On May 28 I ordered diuretin, 7 drachms divided into ten powders (42 grains to the dose), one powder to be given every two hours. Before she received these large doses there was extreme edema of the left leg, some edema of the right leg, edema of the vulva, and some ascites; and there was danger of uremia setting in. The urine began to flow more fully after the fourth dose. She slept eight hours between the fifth and sixth dose. Upon awaking the treatment was continued until she had taken twenty powders, 14 drachms of diuretin, in fifty hours. The dose was then reduced to half, and after forty-eight hours to one-quarter of the original dose, when it was given at less frequent intervals. The diuretin was discontinued on the seventh day, the urine output being then 50 ounces. The edema of the vulva has disappeared, but not the edema of the legs or the ascites. I omit other treatment, as I want to call attention here only to the large, single, and daily doses of diuretin which can be given safely. The maximal dose is stated to be 15 grains, and for the day 2 drachms.

I. L. Nascher, M.D.

New York, June 6, 1915.

### EMETINE HYDROCHLORIDE IN AMEBIC DYSENTERY.

To the Editor of the Therapeutic Gazette.

Sir: The writer has had experience with this remedy in only one case, but the result was so magical (I can use no other word to express it) that I am prompted to report it.

Patient, W. T. R., male, aged twenty-nine years, had enjoyed fairly good health until August, 1912, when he had what seemed an ordinary attack of dysentery. This did not yield to the usual remedies, so enemata of quinine bimuriate were tried for some time. The patient got up and was able to attend to his duties, that of cashier in a bank; but the relief was only temporary. The quinine enemata were stopped, but his bowels continued loose and easily disturbed for the next two years. He was up and around, but lost strength and flesh, and the least indiscretion in diet would cause him to have fifteen or twenty thin, offensive actions, containing pus and blood, in the next twenty-four hours.

He had been dieted and given various remedies during this time with only temporary improvement.

In November, 1914, the stools, while warm, were examined by a competent microscopist, and quite a number of the entamœba histolytica were found.

I had previously read about Rogers's experience in India with emetine hydrochloride in amebic dysentery, and I immediately began the use of it by giving half a grain of emetine hydrochloride, in ampoule form, daily, hypodermically. His diet was at the same time regulated. There was improvement after the first dose. After sixteen days, a daily dose hypodermically being given, he was apparently in perfect health, and has remained so to the present time, now six months.

Camden, Ark. J. W. Meek, M.D.

## NOTES AND QUERIES.

### LONDON AND ITS WAR-ALARMS.

Some of our readers will be interested in the following note which is taken from the *British Medical Journal* of May 29, 1915. Few of us appreciate the alarm felt in London concerning aerial raids, and this note is of interest in this connection, and also because of the extraordinary facts which it states. The prospect of having dropped upon one's house a bomb which contains molten metal of the temperature of 5000 degrees Fahrenheit must be somewhat disturbing to the nervous system.

1. The ordinary explosive bombs em-

ployed by the enemy rarely cause a fire *per se*, but where a building is injured or collapses fires are frequently caused by open lights or fires, etc., and their spread is assisted by escaping gas from broken mains or arcs from broken electric cables.

Fires thus caused indirectly by explosive bombs can as a rule be dealt with as ordinary fires in their incipient stage. Any gas or electrical supply not cut off prior to the outbreak should, if possible, however, be cut off at the earliest possible moment.

2. The incendiary bombs employed by the enemy readily fire buildings and their contents owing to the fierce nature of the flames and the molten metal generated by the chemical used.

Fires caused by incendiary bombs may be prevented from spreading, regardless of the high temperature generated at the actual seat of the outbreak, if water be promptly applied in fair bulk, force, and continuity, say from a series of buckets energetically thrown, or hand-pumps vigorously worked. Sand or loose soil similarly thrown might be useful in the absence of water, but would not have the necessary cooling effect. The application of single buckets of water, single shovels of sand, etc., would be comparatively valueless, a concentration of the available liquid first-aid appliances being required to obtain the necessary result.

In order to deal with fires from incendiary bombs, their make should be understood, and the following describes one of the types frequently used:

(*a*) The bomb, as a rule, is conical, of 10 inches diameter at the base, corded round, and has a metal handle at the apex.

(*b*) The base is a flat cup, on to which a pierced metal funnel is fitted, having the ignition device and handle fitted at the top.

(*c*) The funnel is generally filled with thermite, which upon ignition generates intense heat, and by the time of the concussion has taken the form of molten metal of the extraordinary temperature of over 5000° F.

The molten metal is spread by the concussion.

(*d*) Outside the funnel is a padding of a highly inflammable or resinous material bound on with an inflammable form of rope. The resinous material creates a pungent smoke.

(*e*) There is generally some melted white phosphorus in the bottom of the cap which develops nauseous fumes.

(*f*) In some cases celluloid chippings are added, and occasionally a small quantity of petrol.

3. *Fumes.*—The fumes of the bombs are generally very pungent, and a simple form of respirator (that can be readily damped) should be kept handy and used where necessary.

Firemen and others whose duty it is to attend incendiary fires would do well to carry simple respirators in their uniform.

Should definite information be received of the approach of hostile aircraft or actual bombardment commence in the vicinity, refuge should be promptly taken in the cellar, basement, or lower floor.

All gas-lights or stoves should be turned out, and the gas supply turned off at the meter.

All electric lights should be switched off, and the supply turned off at the main switch near the meter.

Further, if time permits:

All oil lamps should be extinguished and taken into the cellar or basement.

All open fires above basement level should be extinguished.

All doors should be closed.

All windows should be closed, and all shutters where such exist.

Buckets of water should always be available, and where spirit is used also buckets of sand.